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PAPER TRADE JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

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FIFTY-SECOND YEAR

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PAPER TRADE JOURNAL

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THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD
FIFTY-SECOND YEAR
Published Every Thursday by the
LOCKWOOD TRADE JOURNAL CO., INC.
LESLIE R PALMER, PRESIDENT · GEO. S. MACDONALD, VICE-PRESIDENT & TREAS. · F. K. HOPPIE, SECRETARY
10 EAST 39TH ST. N.Y. U. S. A.
CHICAGO, 431 S. Dearborn St. · BOSTON, 127 Federal St.

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R. T. VANDERBILT COMPANY, Inc.
50 East 42nd Street, New York

ESTABLISHED IN 1872

PAPER TRADE JOURNAL

Vol. LXXVIII No. 23 NEW YORK AND CHICAGO Thursday, June 5, 1924

NEW HEAD FOR INTERNATIONAL PAPER COMPANY

A. R. Graustein, a Boston Lawyer, Succeeds Philip T. Dodge as President, the Latter Being Elected Chairman of the Executive Board, a Newly Created Office—Statement by the Company Announces That Action Relieving Mr. Dodge of the Active Duties as President is in Response to His Repeated Requests —International's Great Growth During His Incumbency of the Office

Philip T. Dodge, for ten years president of the International Paper Company, has been relieved of the duties of that office in response to repeated requests to that end. The action was taken at an organization meeting of the company's board of directors held last Thursday afternoon. The company, however, retains Mr. Dodge's services in another capacity for Mr. Dodge was elected chairman of the board, a newly created office.

Boston Lawyer Succeeds Him

A. R. Graustein of the Boston law firm of Ropes, Gray, Boyden and Perkins, was elected to succeed him as president. He is a legal expert on municipal and corporation bonds and has frequently been counsel for Boston financial interests. Active participation in the reorganization of the Riordon Company has given him experience in the paper business. He is a comparatively young man. He graduated from Harvard in 1904 and from Harvard law school in 1907. During his last year in law school he was editor of the *Harvard Law Review*. Upon graduation he was offered a position with the law firm with which he is now connected and has since become a member of the firm.

Other Officers Elected

Other officers elected at the meeting were: Vice-presidents, W. E. Haskell, Allen Curtis and Chester W. Lyman; treasurer, Owen Shepherd; secretary, F. G. Simons; auditor, B. C. Booth.

After the meeting, which was held in the directors' room of the Chase National Bank, the following official statement was issued by the directors:

Statement of Directors

"Mr. Dodge has for some time been asking to be relieved of the active duties of the presidency, and his election to the chairmanship of the board is in response to this request. The Board of Directors was unanimous in its support of the policy of development of low-cost properties in Canada which was so successfully inaugurated with the Three Rivers mill.

"A recent survey of the company's properties has confirmed the opinion that its large resources can most profitably be employed in the further pursuit of this policy. The results of the operation of the company's Three Rivers mill have more than justified the expectations which were entertained when its construction was determined upon. Designed with a nominal output of 240 tons a day, it has been producing daily in the neighborhood of 300 tons, its operating cost being among the lowest in the industry. The directors now have in contemplation the installation of two additional machines at this mill, to bring the production up to 450 tons a day, or as a possible alternative the construction of a new mill at Batiscan."

Ten Years as President

Mr. Dodge became chief executive of the International in 1913. The company was then the possessor of numerous mills, dams and other properties built in accordance with old methods. His entire administration has been one of development. The company has during that period entered the hydro-electric power field, converting some of its news print mills to the production of other grades of paper.

It entered the Canadian news print field with the erection of the Three Rivers, Quebec plant, said to be the lowest cost producer on the continent. Since 1899 no dividends have been paid on the 200,000 shares of common stock, earnings being put back into plant and property. Mr. Dodge's policy has been against dividend payments when the money was considered necessary for improvements and extensions. Carrying out of this policy enables the company today to point to an unusual record of expansion during the past ten years.

To Build De Vains Plant

Arrangements have been completed between M. Dolphus, representing the De Vains interests of Great Britain, and a group of Winnipeg business men, including W. R. Allen, president of the Union Bank of Canada, for the construction of a plant for the manufacture of pulp from straw. The property on which the plant will be located is north of Selkirk, Man., and covers an area of 30 acres.

Proposes Export Tax on Ontario Pulp

PORT WILLIAM, Ont., May 30, 1924.—An export tax of $1 a cord on all pulpwood shipped to the United States from Ontario was advocated today by James Lyons, Provincial Minister of Lands and Forests. Mr. Lyons predicted that this policy would be followed by the Ontario Government and that the tax would be increased to a point where it would conserve all pulpwood here for Canadian mills.

Centennial Mills Make Improvements

VALATIE, N. Y., May 26, 1924.—The Centennial Mills, Inc. have closed their plant here for a few weeks to install a new water wheel and make other necessary improvements and repairs.

MANITOBA PULP CO. TO BUILD BIG MILL AT ST. BONIFACE

Company Has Capital of $5,000,000, of which $3,600,000 Will Be Expended in Immediate Operations—George Seaman, of the Widely Known Paper Firm of Chicago, Reported to Be Behind the Project—Great Lakes Paper Co., Which is Erecting a Ground Wood Mill at Fort William, Ont., Opens Office in Montreal—L. S. Dixon, Veteran Paper Dealer, Visits in Canada.

[FROM OUR REGULAR CORRESPONDENT.]

TORONTO, Ont., June 2, 1924.—The Manitoba Pulp and Paper Company will shortly establish its plant at St. Boniface, Man. The company has a capital of $5,000,000, of which the cash outlay will be $3,600,000 in immediate operations.

George Seaman, of Chicago, head of one of the widely known paper firms, is reported to be behind the J. D. McArthur enterprise, and, having satisfied himself that the necessary supply of pulpwood is in sight for a 200-ton news plant, he is keen to have the work started. Mr. Seaman was in Winnipeg recently in connection with the proposition.

The new industry will give employment when in operation to about 700 men. The immediate expenditure of erection and installation will take care of the bulk of the unemployment situation in Winnipeg and St. Boniface, and the winter work of supplying the pulpwood for the plant will engage several hundred men.

By its industrial bylaw the city of St. Boniface enables the company to locate at a fixed assessment on land which has for some time been practically off the tax-paying lists of the city.

The Manitoba Pulp and Paper Company's mill to be built in St. Boniface will be a "balanced" establishment, by which is meant it will manufacture both its sulphite and ground wood pulp on the premises.

In the Seaman connection, J. D. McArthur's company has the most important feature requisite to the success of an enterprise of this or any other sort. Its market is assured. The western Canadian consumption of news print in the field tributary to the new mill affords a possible market of well over 50 tons per day. The balance of the 200 tons per day is already guaranteed a market by Mr. Seaman's connection in the United States, which, at $70 per ton, means an enormous income to St. Boniface, Winnipeg, Manitoba and Canada.

Great Lakes Co. Opens Office in Toronto

The Great Lakes Paper Company of Fort William, Ont., whose one hundred and eighty ton ground wood plant will soon be put in operation, has opened an office in Toronto in the Dominion Bank building, corner of King and Yonge streets. J. H. Black, president of the company, has private office there. Mr. Black is now devoting his entire time to the affairs of the organization, having, at his own request, been relieved of managerial duties which claimed a large portion of his attention in insurance, power and other concerns. He is enthusiastic over the future of the Great Lakes Paper Company, which will, build in the near future a hundred ton news print mill at Fort William.

Veteran Paper Dealer Visits Canada

Lancelot S. Dixon, of L. S. Dixon & Co., Limited, Liverpool, Eng., of which firm he is managing director, is making an extended business and pleasure trip to Canada and will visit New York, Toronto, Montreal and other cities in the east and then cross the Dominion going as far as Victoria. He is accompanied by Mrs. Dixon. Mr. Dixon, whose firm is selling agent for the Hurcott Paper Mills, Kidderminster, although in his eighteith year, is still alive to the interest of his company with a view to extending its connections in the United States and Canada. The object is to introduce the latest British dry flong.

Spruce Falls Co. Have Ample Pulpwood

The Spruce Falls Company, Kapuskasing, Ont., during the past season contracted for eighty thousand cords of pulpwood, about fifty thousand being obtained from contractors and the remainder from settlers. The wood has come down on the drives in good shape. The new community club house, which the company erected, is liberally patronized by the employees of the organization. It is provided with all recreational facilities, and has increased the morale of the workers. A nominal fee of six dollars a year is charged each worker for the privileges of the club house and all departments of the splendid building are made generous use of by the mechanical and executive staffs.

Erection of New Forestry Building

It is announced that a new Forestry school building will be erected by the University of Toronto on the college grounds and that construction will start this season. The edifice will be the last word in equipment and facilities and Dr. Howe, Dean of the Faculty of Forestry, reports that the prospect for an enlarged attendance are very bright.

Notes and Jottings of the Industry

H. B. Donovan, sales manager of the Canada Paper Company, Toronto, spent the past week in Montreal on business.

Charles Goodwin, master mechanic of the Abitibi Power and Paper Company, Iroquois Falls, Ont., has resigned and taken a similar position with the Ontario Paper Company, Thorold, Ont.

George Carruthers, of Toronto, president of the Canadian Pulp and Paper Association, was in Montreal last week attending a meeting of the Executives of the Association. A farewell dinner was tended Ed Beck, Secretary of the Association, on the occasion of his leaving for London, Eng., to visit the British Empire Exhibition.

William Zieman, who is well known in the paper industry, being formerly with the Abitibi Company at Iroquois Falls and now with the Fort William Paper Company, Fort William, Ont., has returned after spending several weeks in California.

James A. Cook & Son, 231 Bay street, Toronto, paper dealers and commercial stationers, have removed to more commodious quarters on Yonge street near Wellington street.

The first, pulpwood baling machine to be used at the head of the Great Lakes is being employed by the Canada Forwarding Company in shipments of pulpwood from Thunder Bay to American points. The baler takes one half cord of pulpwood at one operation.

N. L. Martin, of Toronto, who is secretary of the Canadian Paper Trade Association, has returned from Matheson, Ont., where he went to make an independent report on the physical development of the Hattie gold mine for the Columbus and New York interests, which have associated themselves with the company. A new vein was recently cut.

A public offering is being made of a two hundred thousand dollar bond issue of the Canadian Paperboard Company which has mills at Montreal, and at Campbellford and Frankford, Ont. This forms part of an authorized issue of $1,500,000, of which $800,000, including the present offering, have been issued.

The Thunder Bay Paper Company, Port Arthur, has commenced work on a new addition to the plant and the output of groundwood pulp will be increased from sixty-five tons to one hundred and twenty tons daily.

General Tissue Corp. Leases Litchfield Mill

[FROM OUR REGULAR CORRESPONDENT.]

FRANKFORT, N. Y., June 2, 1924.—The Litchfield Paper Company's plant here has been leased for three years by the General Tissue Corporation. It is understood the lessees will operate the factory under its present policy. Fifty persons are employed in day and night shifts.

PHILADELPHIA PAPER TRADE HAD POOR MONTH'S BUSINESS

Report of Federal Reserve Bank Shows Conditions Far From Satisfactory With a Falling Off in Orders Since April—New Distributors Appointed for Dill & Collins Lines—Anderson Paper Co. Completes Installation of Stock—Eagle Press Develops Bag Printing Specialty—Local Paper Dealers Attend Convention of Box Manufacturers—Paper Trade News Notes.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., June 2, 1924.—Summarizing the paper trade conditions in the month just passed the Federal Reserve Bank for the Third or Philadelphia District in its June report to be issued this week will say:

"A falling off in orders since April is reported by the majority of paper manufacturers, and the present demand is only fair. No mills in this district find business as good as it was in May, 1923. Book and fine papers are still selling in large volume, and operations at mills making these are unchanged at 85 per cent. Wrapping papers, particularly manilas and krafts, are not moving as well as they did in April, and production has declined. Toilet tissues and crepe towels, which since the first of the year have been in good demand, are selling less actively than they were a month ago, and output has slightly decreased. Building and roofing papers are in only fair request, and few mills are operating at more than 75 per cent of capacity. The call for glassine and wall papers, however, is well maintained. Mills making boxboards state that business is fair or poor and smaller than it was last month. Envelope makers report a decrease in orders and a reduction of factory operations to 70 per cent.

Buying continues to be in small lots for spot requirements only, and most of the mills have only two weeks' business on hand. Jobbers report that their sales are smaller than those of a month ago.

But despite the slackening in demand, paper prices have held firm and are practically the same as they were a month ago. Concessions in boxboards, however, are obtainable. Prices of mechanical pulp are firm, and some grades of chemical pulps have advanced from .2 to .3 cents per pound.

Finished stocks at the mills vary from light to moderate and are stationary; the same is true of supplies of raw materials. Sufficient supplies of both skilled and unskilled labor are available, and wages are unchanged. Collections range from fair to good."

Watt Joins Cherry River Paper Co.

Trade associates learned of the recent recovery of Alfred M. Watt, formerly engaged in business for himself in Chancellor Street, below Market, from a prolonged and very serious illness from pneumonia and of his return to paper trade circles as a sales representative of the Cherry River Paper Company, whose Philadelphia executive offices are located in the Pennsylvania Building, under the direction of Vice President Collins. Mr. Watt spent several months in Atlantic City recuperating before accepting the position with the Cherry River Company.

New Dill & Collins Distributors

In addition to the large number of paper distributors throughout the country who carry the lines manufactured by the Dill and Collins Company, whose mills are located at Manayunk, there have been recently appointed the following paper firms to represent the lines in their respective sections:—J. Francis Hock Company, Washington, D. C.; John Carter & Co., Concord, New Hampshire; John Carter & Co. Inc., Springfield, Mass. and Blake, Moffitt and Towne, Sacramento, Cal. Several of the paper firms scattered over the country have been representing the Dill and Collins lines for many years but much of the Eastern States' distribution had been confined to the consuming trade direct, until the new policy of selling only to the distributors became effective a few months ago. The Dill and Collins Company sales offices, maintained in the central section of the city for a number of years, are to be removed to the Herrin Building, 11th Street, near Arch, in July, the company to occupy the fourth floor of the building. Reigel & Co. will take over the old sales location at 5th and Cherry Streets upon the removal of the Dill and Collins company.

Anderson Paper Co. Installs Stock

The Anderson Paper Company which recently opened a warehouse and sales offices in the building at 430 Race Street, has just completed the final stocking of the line of bristols, cardboards and blanks in which it will specialize, several carloads having been received last week as the last of the lot to be installed in the new warehouses from the initial shipments. The firm was organized just a few months ago and for a time occupied sales offices in the Drexel Building giving them up in April to take over the new quarters of combined warehouse and sales offices. Albert H. Anderson, proprietor of the firm, is now sending out the complete sample and price lists of the various makes of bristols and printers cardboards to be carried in stock, among them being several of the well known large mill brands.

Printers Specialize in Bag Printing

A specialized business of printing bags for manufacturers has been developed by the Eagle Press, 1530 N. Warnock Street. The firm has equipped its plant with Gordon presses adapted to the printing of any size bag, in large quantities for the distributors as well as manufacturers of bags. Its proprietor has had many years of experience in the bag manufacturing business having for several years been associated with the American Bag and Paper Company and with Charles E. Sanderson.

Paper Dealers at National Box Convention

Among the Philadelphia Paper houses, catering to the box manufacturing industry, several firms were represented at the Convention of the National Paper Box Manufacturers' Associated held in Swampscott, Mass., during the latter part of last week. Those who journeyed north were John Datz, A. S. Datz and Son; Henry L. Scherer and J. F. Wilhelm, Charles Beck Company; Elmer Renner, Charles W. Williams Company; Charles Matthias, Matthias and and Freeman; Philip Rudolph of Philip Rudolph and Sons; and George Schaefer of the Philadelphia Paper Manufacturing Company.

News Notes of Trade Interest

President Norbert A. Considine of the Paper House of Pennsylvania was elected to the Vice Presidency of the Poor Richard Club, the local organization of advertising men.

Charles Magarge Levis, Vice President of Curtis and Brothers, is now touring Europe with present traveling confined to France. He is expected to return the middle of July.

The Seaman Paper Company, with offices in the Atlantic Building, is sending out its samples of new papers of groundwood supercalendar known as Diatext and groundwood M. S. Diapaque, both in white only.

The Atlantic Paper Company, has added to its lines the new Organization Bonds, a water marked rag content paper.

Manufacture of the blotters, made by the District of Columbia Paper Manufacturing Company, of Washington, D. C., is being shown in a window exhibition of automatically changing slides, in the display window of the Raymond and McNutt Company. It shows the entire process from the raw material preparation, the grinding in the mills and the complete course through which the papers pass before they are completed and then the final shipping of the finished blotters, all taken from actual photographs in the plant. The slides are automatically operated on a continuous night and day schedule.

CHICAGO TRADE PURSUING EVERY CHANCE FOR BUSINESS

Manner in Which All Consumers Are Being Pressed for Orders Indicates Condition of Market—Bonds and Ledgers Exceedingly Spotty and Book Papers Have Showed a Slight Falling Off—Coarse Papers Have Started Down the Skids and Board Mills Find Themselves in Discouraging Position—Central States Paper Trade Association Meets and Elects A. H. Seyler, President.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., June 2, 1924.—The exact condition of the Chicago paper market is best expressed by citing the fact that every possible consumer of paper is being hard pressed for orders. From this, all other resulting, as well as affecting, conditions may be concluded.

In the first place, a spotty market is apparent. It is difficult to judge what a day or week may bring forth. Buying of upper grade has grown irregular with every evidence that users are purchasing "from hand to mouth" with no stocks on hand for future use. Bonds and ledgers in particular continue spotty, while book papers have dropped off slightly again in consumption. It is the opinion that book papers will experience a fair demand through the summer months.

Mills Maintain Fair Price Level

With a limited amount of business, as it were, competition naturally becomes keen and among those catering to the retail trade there is apt to be shaving of quotations to some extent. However, it is said by a reliable authority that mills are not inclined to cut prices and that they are taking the situation philosophically, and not attempting to slash prices. They realize this will not create more business.

In the midst of hard contending for orders, a view is expressed that next fall will bring with it a much better business. By that time, warm weather sluggishness will have passed off, as well as superstitious ideas incident to a presidential year. Stocks also will be depleted and consumers will return to the market with a new enthusiasm, it is asserted.

Coarse Paper Demand Hits the Skids

Demand for coarse papers, such as kraft, and all other wrappings, has also seemed to be on the toboggan, but a good share of its descent took place within the past six weeks. Higher grades have declined somewhat, but the lowering of prices has not been as marked as would be expected under the circumstances. Sales forces of firms handling coarse papers are required to exert unusual effort in piling of volume and no possible outlet for the stock is overlooked. All branches of the consuming trade are solicited constantly in an effort to create new business to supplant the old which in many cases is now inactive.

Board mills are in less encouraging positions now than during the last few months. Some mills serving this territory have just closed down because the slight business received made it unprofitable to operate with the prevailing overhead. As they enter June, it is stated that they expect a month of inactivity with perhaps no more demand than is now experienced, but that July will prove to be somewhat more encouraging. Prices established a few weeks ago are prevailing, especially on containers.

Paper stock, of course, is affected by the diminished demand in other branches of the industry. The lull in boards especially is having a serious effect upon paper stocks because a large portion of them are consumed by this industry. Further price reductions have gone into effect. These cuts have come principally in the upper grades of paper stocks, some of them being quite radical. Very little is moving and the immediate future does not hold forth any more encouraging situation.

Roofing stock has receded in price practically $10 per ton in the past two months. Even at the low figures now holding, there is little demand. Roofing plants, which consume more than half the supply of roofing stock, are conspicuous in the market by their absence. Other industries are not buying either.

Central States Association Meets

The annual convention of the Central States Paper Trade Association was held at French Lick Springs Hotel, French Lick Springs, Ind., on Friday and Saturday, May 23 and 24.

It was brought to the attention of the membership that national advertising agencies are continually advising manufacturers that in order to get proper results from their advertising they should have a continually widening circle of distributors. It is believed that this policy is detrimental to the interests of the paper merchant.

Considerable discussion was given to the subject of how operating expenses might be reduced, with special attention to the duplication of lines. One executive said that after a careful survey of those lines which were showing adequate profit, he was able to omit 122 items.

The nominating committee made its report, selecting these men for officers for the ensuing year: President, A. H. Seyler, of Alling & Cory, Pittsburgh, Pa.; vice-president, Fred Fox, Crescent paper Company, Indianapolis, Ind., and treasurer, H. W. Newcomber, of the Cleveland Manufacturing Company, Cleveland, Ohio. The secretary was empowered to cast a unanimous ballot electing these men as officers.

The president appointed as a local program committee, A. H. Seyler, chairman; and Arthur Stevens, Choke-Stevens Paper Company, Detroit, Mich., and T. F. Smith, of the Louisville Paper Company, Louisville, Ky., as members of the committee.

The morning session was recessed at 1:20 p.m., and the convention reassembled at 8:30 in the evening. Attention was given to the simplification of sizes as recommended by the Department of Commerce, at Washington.

Upon the invitation of the Cleveland men, it was decided that the next meeting be held sometime the latter part of July in Cleveland.

Austin Co. in New Quarters

The Austin Company, engineers and builders, has moved its Chicago offices to suite 1,300 in the Burnham Building, 160 North La Salle street, where greatly increased facilities will enable the firm to render complete industrial service to a large number of clients. The new telephone number is State 5510.

Illinois Envelope Co. Moves Offices

The Illinois Envelope Company has removed its offices from 115 South Dearborn street to larger and more desirable quarters in the Peoples Gas Building, at 122 South Michigan avenue, where it occupies suite 557.

Clayville Paper Mill Property Sold

[FROM OUR REGULAR CORRESPONDENT.]

UTICA, N. Y., June 2, 1924.—Property in the mills of Clayville Paper Company, recently declared involvent, was sold at auction for $40,000 to consolidated banking interests of Rochester, at the office of Referee in Bankruptcy F. J. De La Fleur.

The Rochester parties, represented by Carlton Bowne, were the only bidders, their offer of $40,000 being accepted without competition. Mr. Bowne deposited a check for $2,500 as temporary installment.

Several creditors of the bankrupt concern were present at the sale. Waid H. McKnight is trustee.

Lake Champlain Paper Co. to Start Machine

[FROM OUR REGULAR CORRESPONDENT.]

PLATTSBURG, N. Y., May 31, 1924.—The Lake Champlain Pulp and Paper Company is planning to start its new machine about July 1.

KENWOOD FELTS : KENWOOD SEAMLESS FELTS
KENWOOD TAN JACKETS : KENWOOD GUARD BOARDS

A PROVEN Saving in Cost

The cost of removing water at the dryers is 10 to 20 times the cost of removal at presses.

KENWOOD NEWS FELTS

offer advantages in the removal of water which afford a direct economy in the consumption of steam at dryers.

These felts also afford advantages in the maintenance of level and efficient production that are of vital importance to the newsprint manufacturer.

Full particulars may be obtained by mail or from the Kenwood salesman.

F.C.HUYCK & SONS

KENWOOD MILLS
Albany, N.Y.

KENWOOD

KENWOOD MILLS LTD
Arnprior, Ontario, Canada

WOOL PRODUCTS

CANADIAN PAPER MEN GIVE LUNCHEON FOR EDWARD BECK

Manager of Pulp and Paper Association Honored on Eve of Departure to Represent Association at British Empire Exhibition—Citizens of Hull Fix Assessment of E. B. Eddy Co.—Plans for Proposed Pulp and Paper Mill of Manitoba Co.—New Pulp Grinding Plant May Be Erected at Liscomb—Laminated Wood Plant Being Established Between Terrace and Prince Rupert.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que. June 2, 1924.—Edward Beck, manager of the Canadian Pulp and Paper Association, was tendered a complimentary luncheon by members here on the eve of his departure to represent the association in connection with their exhibit at the British Empire Exhibition at Wembley. The chair was taken by George Carruthers, president of the association, who spoke highly of Mr. Beck's services to the association, remarking that ever since he had joined them first, as publicity manager for the news print section, he had proven a tower of strength to them, particularly in assisting counsel prepare their case for important litigation at Ottawa and Washington. Mr. Beck's services, he said, had become so quietly indispensable to the association that it had been in the nature of things that he should have become their secretary, and then manager, with power to appoint an assistant. They all wished him not only a successful mission as their ambassador at Wembley, but hoped that he would also find time to enjoy a holiday, after years of much hard work. F. J. Campbell, then proposed a toast to Mr. Beck, in which he gave many details of their guest's career.

Mr. Beck Warmly Greeted

Mr. Beck was warmly greeted on responding to the toast, and expressed his appreciation, not alone of the friendly spirit that had led to the gathering, but of the continued and broadminded support he had received from the members of the association during the six years he had been with them, a support which had made his work one of real pleasure. From a small beginning, said Mr. Beck, the Pulp and Paper Association today stood at the forefront of Canadian trade organizations, not alone in its care for the interests of the industry itself, but in its work for the benefit of Canada, as representing one of the leading national industries. This attitude had been shown in their exhibit at the British Empire Exhibition, planned not only to advance their business abroad, but to make Canada and its resources better known, and to give the world a truer picture of the Dominion and what it could produce. As to the exhibition itself, Mr. Beck said that the Association's exhibit at Wembley occupies 1,000 square feet of space in the Canadian building and is the largest made by any individual Canadian industry.

Brief speeches by C. Howard Smith, E. L. Crooker, H. P. Kernan, and A. E. Cadman, assistant to Mr. Beck, concluded the luncheon. Mr. Beck sailed for England on the *Carmania*.

By-Law Favors Eddy Mills

Enthusiastic scenes featured the unanimous adoption by the citizens of Hull of the by-law fixing the assessment of the E. B. Eddy Company at $4,000,0000. Mayor Cousineau, in an eloquent speech, referred to the event as a red-letter day, in the history of the city. The sulphite and cardboard mills, which were closed down by the company pending the settlement of the long dispute on the assessment, will be re-opened, Mayor Cousineau said, and these will give employment to 400 people. The original assessment was for $7,000,000. On the company protesting this amount, a judicial commission was appointed and placed the figure at one-half that amount. Various compromises have been suggested unsuccessfully and today's by-law, which fixes the amount at $4,000,000 for ten years clears up a situation which for some time threatened to result in the moving of the Eddy Company from Hull.

Aroostook Falls Development

It is expected that the Aroostock Falls Hydro Development, located a few miles from Andover, N. B. one of the largest power plants in New Brunswick will shortly be acquired by the North America Light and Power Company, which is controlled by Chicago financiers. An option for sixty days has been given the Chicago financiers. The Maine and New Brunswick Electrical Power Company is now developing about 8,000 h.p. at Aroostock Falls. Upwards of $30,000 was expended last year on improvements, and it is expected that 10,000 h.p. will eventually be developed.

Price George Pulp and Paper Plant

After next month's provincial elections in British Columbia, it is expected that a definite and official announcement will be made by the Montreal promoters of the projected $10,000,000 pulp and paper plant which it is proposed to establish near Prince George. It was thought that following the statement early in the year by Hon. T. D. Pattulio, Minister of Lands, upon his return from Montreal after interviewing Messrs. Jones and McLean, the capitalists who are the chief backers of the paper mill plant, some further announcement would be forthcoming from the promoters. But the election next month is now reported to have led them to decide to take no action until the fate of the present provincial government is definitely known.

Laminated Wood Plant Near Prince Rupert

The Skeena Laminated Wood Company, Limited, incorporated at $1,200,000 and backed by Vancouver capital, is establishing a plant about half way between Terrace and Prince Rupert to manufacture laminated cottonwood and similar products. The initial expenditure will be $200,000 this year. They plan a total expenditure of $600,000 in the next couple of years, enlarging the mill building, with a model town adjacent, securing more timber limits on the site of Devil's Island. The company has 400,000,000 feet of cottonwood adjacent to the plant, and American and foreign concerns are negotiating for the entire output of the first unit.

The Bathurst Company Limited

It is stated here that the Bathurst Company Limited of Bathurst, N. B., is curtailing its pulp making operations owing to the unattractive market but that this does not affect the paper mill of the company which has a capacity of 60 tons of news print a day. The pulp mill produces sulphite and Kraft pulp, the capacity being 100,000 lbs. of each every 24 hours.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., June 4, 1924.—The Government Printing Office will receive bids on June 6 for 10,000 pounds (125 reams) of 25 x 38 end paper.

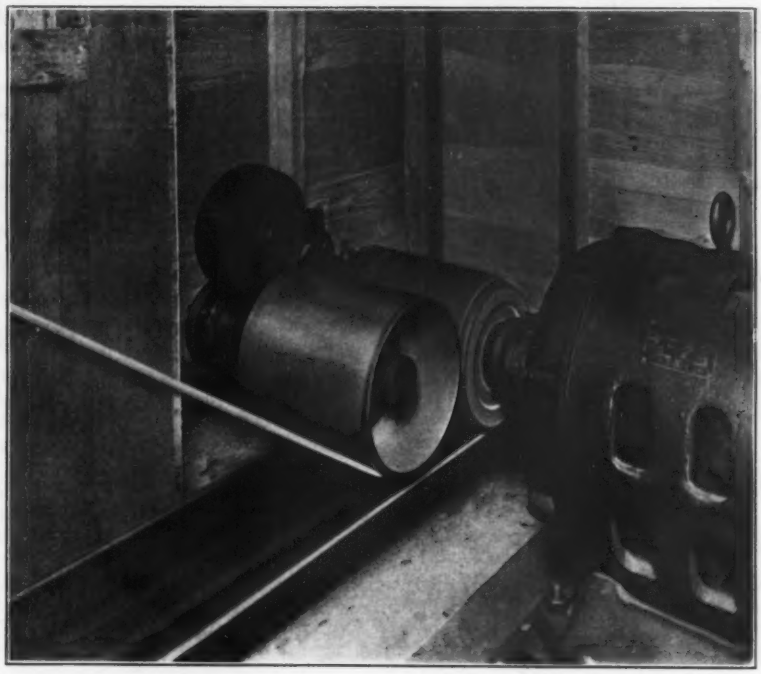
The Bureau of Supplies and Accounts, Navy Department, has announced that bids will be reopened at a later date for 5,000 strawboard shipping containers, bids for which were received on May 27. The specifications will be changed.

Now Downingtown Paper Co.

EAST DOWNINGTON, Pa., May 31, 1924.—The Frank P. Miller Paper Company, manufacturers of paper box boards, has changed its firm style to the Downington Paper Company. The officers of the new corporation are as follows:

J. Gibson McIlvain, president; Walter B. McIlvain, vice-president; Frank Parke, secretary and treasurer; Horace A. Pyle, assistant treasurer; A. J. Brookover, superintendent.

Short Center Drives are Best



Note the large arc of contact on motor pulley.

In Most Cases— 75% Less Tension

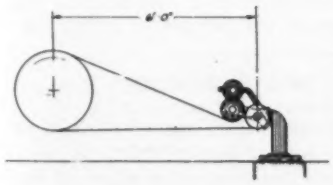
Kick the belt of a Pulmax Drive traveling under full load. It acts like a loose belt running free.

This is rough proof of the scientific fact that the Pulmax Short Center Drive eliminates 75 per cent of the unproductive tension required in the ordinary open drive.

Pulmax reduces tension by wrapping the slack side of the belt around the smaller pulley—arcs of contact of 225 degrees and more are obtained. The necessary initial tension is always maintained.

Less tension saves power. A Pulmax Drive often runs a minute or more after power is cut off. Bearing friction is reduced by 50 per cent. Less tension also means longer life from belt.

Write for the Pulmax catalog—then check over the drives in your plant. We shall be glad to furnish complete information for the improvement of any drive.



Details of Pulmax Installation shown above.

BIRD MACHINE COMPANY

Pulmax Drive Division

South Walpole Massachusetts

Pulmax Drive

6846

New York Trade Jottings

Price and Pierce, Ltd., of 17 East 42nd street, announce that they have acquired the United States selling agency for "Gota" sulphite pulp.

* * *

June 11 has been fixed as the date for the quarterly meeting of the National Association of Waste Material Dealers, Inc., which will be held at the Hotel Astor.

* * *

Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, addressed the Engineers' Club at Philadelphia on Tuesday, speaking on Pennsylvania's forest problems. Yesterday he spoke at Holyoke, Mass., before the Kiwanis Club, speaking of forestry and the paper industry.

* * *

Spear & Co. have leased to the City Corrugated Paper Products Company, 622-640 West Fifty-seventh street, a four-story and basement building, 250 x 144. It is owned by the P. & M. Building Company, and will be altered to meet the demands of the paper company, which has been located in East Twenty-second street for ten years. This lease is for thirty-three years, at an aggregate rental of $1,100,000.

* * *

Charles A. Marshall, trustee in bankruptcy announces that there will be offered for sale at 11 o'clock on the morning of June 9 at the office of Robert P. Stephenson, referee in bankruptcy, 32 Broadway, New York City, the paper mill properties and water rights, known as the Hadley mill of the Durham Pulp and Paper Company, and the U. S. Paper Manufacturing Corporation. These properties are located at Hadley, N. Y., and consist of a well equipped paper mill, railroad siding, mill dwellings, garage, etc., and a dam and valuable riparian rights in the Hudson river. Rosenberg & Ball, 74 Broadway, and Tanzer & Lane, 261 Broadway, New York City, are the attorneys for the trustee in bankruptcy from whom more complete details regarding the properties to be sold may be obtained.

* * *

The steady advance in International Paper Company common stock probably can be explained by the belated appreciation of the earning capacity of the company, says the financial editor of the *New York Sun*. Earnings so far this year, it is said, are running about on a par with 1923, when the company earned at the annual rate of $11.50 a share on common stock. Last year the company produced the largest amount of paper in its history and more than double that of any other producer in the world. At the present time there seems to be no reason why the current rate of earnings shall not be maintained for the balance of the year. The mills are now producing around 1,700 tons of paper daily, practically at capacity operations, although they have produced as high as 2,000 tons daily. The price of $75 a ton for print paper will be maintained for the balance of the year, since all contracts are now on a yearly basis. The common stock of the company has received no dividends since 1899.

Waxed Paper Association Officers

The American Waxed Paper Association which partially organized during convention week recently completed organization at a meeting held in Buffalo. At that time officers were elected as follows:

President, W. L. Carter of the Nashua Gummed and Coated Paper Company of Nashua, N. H.; vice-presidents, W. J. Eisner of the Newark Parrafine and Parchment Company, Newark, N. J., and George S. Gaylord of the Menasha Printing and Carton Company of Menasha, Wis.; secretary, O. M. Porter, assistant secretary of the American Paper and Pulp Association; executive committee, the above officers and J. W. Hurlburt of the Bennington Waxed Paper Company of Bennington, Vt.; M. Berkowitz of the Waxide Paper Company of Kansas City; W. E. Donnelly of the Central Waxed Paper Company of Chicago; A. Havemeyer of the Package, Paper and Supply Company of Springfield, Mass., and Jacob Kindleberger of the Kalamazoo Vegetable Parchment Company of Kalamazoo, Mich.

The purposes of the association are set forth in the following announcement:

As almost the entire tonnage of waxed paper manufactured in the United States is used for the protection and preservation of food, this association recognizes that it has a prime duty to the public to so regulate the methods and materials employed in the manufacture of its product so that it shall be sanitary and suited for food uses.

The purpose of the American Waxed Paper Association shall be to protect and promote the waxed paper industry, and to that end, the association shall undertake to:

(a) Promote mutual confidence among and between the manufacturers and consumers of waxed paper and waxed paper products.

(b) Develop standards of waxed paper, waxed paper products and raw materials used in their manufacture that will be recognized by the industry, the trade and the public.

(c) Develop trade customs covering the manufacture and sale of waxed paper and waxed paper products that will be fair and reasonable for both the manufacturer and the buyer.

(d) Develop credit information.

(e) Establish a research department to further the development and use of waxed paper and waxed paper products.

(f) Develop arbitration measures as a means of settling disputes in the industry.

No Improvement in Wisconsin

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., June 2, 1924.—There has been little if any improvement in the paper situation in the state in the last week. None of the mills have closed down except one at Ashland, but most of the companies except those engaged in book paper manufacture, are curtailing production. The demand for print paper also remains steady. In spite of the fact that business is below normal, advertising is growing and newspapers and magazines are carrying more advertisements than ever before at this time of the year.

Surveys of business indicate that Wisconsin has been least affected among the states in the north central group by business depression. There is considerable unemployment but not enough to be alarming and thus far there has been no tendency toward cutting wages.

Honors for S. F. Shattuck

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., June 3, 1924.—S. F. Shattuck of the Kimberly-Clark Company, was highly honored by the Presbyterian convention at Grand Rapids, Mich., when he was elected to one of the high councils of the church organization. He was elected to the same class of which W. J. Bryan is a member and was the only person from Wisconsin selected for the honor. Mr. Shattuck also recently was elected commodore of the Neenah Nodaway Yacht Club. Mr. Shattuck is having a new yacht built and probably will enter the craft in the Inland Lake Yachting regatta late in the summer. J. C. Kimberly of the Kimberly-Clark Company, was made chairman of the regatta committee.

J. M. Hall Goes With Atlanta Paper Co.

ATLANTA, Ga., May 31, 1924.—John M. Hall, well known paper traveling salesman, has resigned from the National Paper Company to accept a position with the Atlanta Paper Company. Mr. Hall has been connected with the National Paper Company for a long number of years and is well known throughout the South. He will travel principally Southern cities for the Atlanta Paper Company.

LOWER PRODUCTION COSTS

WE CAN PRODUCE

ACTIVE STEAM CIRCULATION
COMPLETE EVACUATION OF AIR
COMPLETE EVACUATION OF WATER

IN YOUR PAPER MACHINE—THIS WILL MEAN

HOTTER DRYERS — **MORE PRODUCTION**
LESS STEAM USED — **LOWER BACK PRESSURE**
MORE UNIFORM DRYING CONDITIONS

WE DO THIS WITHOUT USING

Steam or Water Injectors, Traps or Pumps.

We Use an Entirely New Principle, an Apparatus Based on Natural and Mechanical Laws—Simplicity Itself—in Other Words, We Believe in Letting Water Run Down Hill, Instead of Using Energy to Push It Down.

THE PLANT BEHIND THE PRODUCT
TWENTY YEARS
IN THE MECHANICAL REGULATOR FIELD

If you are interested, write

The S-C Regulator Mfg. Co.

Drainage Department

Fostoria, Ohio
U. S. A.

Recent Incorporations

WILDER INDUSTRIES, INC., Gardner, Massachusetts; dealing in paper obligations and other lawful evidences of property. Capital, $335,800. Incorporators, Joseph P. Carney, Harvey N. Brooks, Ernest Malo, David E. Black, Edith L. Wilder and Fred E. White, all of Gardner.

A. SILFEIN & Co., Brooklyn, New York, paper twine. Capital $10,000; Incorporators A. Silfin, P. and E. Jacobs. (Attorney, A. Oberwager, 233 Broadway).

PAPER PRODUCTS COMPANY of New Jersey, 160 Railroad avenue, Asbury Park, New Jersey.—Manufacturing paper products. Capital $100,000.

SHERWOOD WAXED PAPER COMPANY, manufacture, $500,000; Morgan A. Jones, New York City; Sherman A. Jones, Cambridge, Mass.; James J. Roberts, Franklin Park, Mass. Corporation Trust Company of Delaware.

SOUTHERN PAPER PRODUCTS COMPANY Nashville, Tennessee. To manufacture paper products, printing and advertising novelties. Captial $40,000. Incorporators R. Handes, H. E. Sanders, E. Zimmerman, H. R. Sanders and K. M. Sanders.

PRIME PAPER AND TWINE CORPORATION, Manhattan, New York. 50 shares common stock, no par value. Incorporators A. A. Brill, P. and B. Scheinman. Attorney, H. J. Fliegel, 38 Park Row.

Hoberg Paper Co. Not in Financial Straits

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., June 3, 1924.—An official denial of rumors that the Hoberg Paper and Fibre Company of Green Bay, was in serious financial straits and was about to go into receivership, was issued last week by officials of the company. Their statement also denied that John Welsh, secretary and general manager, had resigned. Rumors of the company's financial difficulties were repeated all over the valley and finally led to the official denial of the stories by officers of the company.

Frank Hoberg, president of the company, said the company is entirely solvent and will continue to operate as heretofore, with the exception of the fiber department which has been closed because the wrapping paper market made it unprofitable.

"The other departments of the mills have been operating and we will continue to operate them," Mr. Hoberg said. "There is no occasion for alarm, we have merely curtailed our operation in this respect and the same thing can be noticed in other businesses."

The statement prepared for the financial institutions shows that the current assets of the company are $777,812.03.

Three men not connected with the company, however, have been selected in operation of the company. The official statement covering their selection says:

"For the best interests of the Hoberg Fibre and Paper Company, the directors have selected Peter Reiss, president of the Reiss Coal Co., Sheboygan; J. M. Conway, vice-president of Citizens National Bank, Green Bay, and Robert W. Baird, president of the First Trust Company of Milwaukee, as trustees under a voting agreement to assist them in the continuation of the successful operation of the company.

It is felt that greater economy in operation as well as in administration can be accomplished and the company placed on a more satisfactory and profitable basis.

"The financial statement of the company as of April 30 shows the company to be in a solvent condition and with improved conditions in the paper industry and with the assistance of the aforementioned individuals who are men of experience the company's affairs should improve considerably."

Mr. Conway amplified the foregoing statement by declaring that his interest in the company does not involve finances but is merely to assist in keeping the plant in operation for the benefit of the stockholders and the community.

Champion Coated Paper Co. Elects Officers

HAMILTON, Ohio, June 2, 1924.—That the fiscal year was satisfactory from a business standpoint and that good business is anticipated for the balance of the present year, was the declaration made by Walter D. Randall, vice-president of the Champion Coated Paper Company, following the annual meeting.

In connection with the annual meeting of the Champion Mills, the annual meeting of holders of common stock of the Champion Fibre Company, recently absorbed by the Champion Coated Paper Company, also was held. All officers of both companies were re-elected.

The officers of the Champion Coated Paper Company are Peter G. Thomson, president; Alexander Thomson and Walter D. Randall, vice presidents; Logan Thomson, secretary-treasurer, and Scott Zollers, assistant secretary-treasurer.

The above officers and Charles C. Benedict and Harry Pounsford, both of Cincinnati, were re-elected members of the board of directors.

In the election of the Champion Fibre Company the following officers were returned: Peter G. Thomson, chairman of the board of directors, Reuben P. Robinson, president; Alexander Thomson and Walter D. Randall, vice presidents; Charles S. Bryant, secretary-treasurer, and Logan Thomson, assistant secretary-treasurer.

Eagle Lodge Wants Its Votes Counted

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., June 3, 1924.—Frank Barry and Matthew Burns of Albany, New York, who are members of the executive committee of the International Brotherhood of Papermakers attended Sunday's meeting of Eagle Lodge here in a vain endeavor to convince that body that they were justified in throwing out the votes of Holyoke and vicinity at the last election. They were questioned on the constitution and bylaws and were unable to satisfy Eagle Lodge members at all. At the close of the meeting the officials gave out a statement to that effect. The court decision has not as yet been filed.

Numerous Replies on Paper Simplification

WASHINGTON, D. C., June 4, 1924.—Replies from the paper and allied industries relative to the paper simplifications adopted through the help of the Simplified Practice Division of the Department of Commerce, are said to be reaching the department in numbers to justify putting the simplification program into effect.

While no official list has yet been compiled it is estimated by officials of the division that fully eighty per cent of the industry has sent in favorable replies.

New Manager of I. P. Mill at Bellows Falls

BELLOWS FALLS, Vt., June 2, 1924.—James E. Myers, who has been manager of the Fall Mountain plant of the International Paper Co., since 1916, has resigned and W. E. Horne, employed as assistant mill superintendent, has been made general manager in Mr. Myers' place. Mr. Myers' resignation in effect May 1st terminated 20 years of service with the I. P. Co. Mr. Horne came to the Bellows Falls mill about three months ago from Philadelphia.

Shelton Mfg. Co. Opens Office

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., June 2, 1924.—P. H. Hoff, of the Shelton Manufacturing Company, Inc., New York City, has opened an office in Room 304, Drexel Building. The new branch sales office will take care of the local sales and distribution of corrugated paper products manufactured by the corporation.

Norwegian Strike Settled

News has reached the American market that the Norwegian strike has been settled and that the mills have now resumed operation. Details as to the settlement are lacking as yet but the announcement comes from sources thoroughly authentic.

Vortex

Paper

DRINKING CUPS

Safe—Sanitary

Easy to handle. Capacity of Vendor 250 Cups.

The only way water should be served — in a new, clean, individual, paper cup — fresh each time.

There's cleanliness, health and safety in these dainty Vortex Paper Cups.

Vortex Cups are tasteless, odorless — made from bleached sulphite paper, saturated with refined paraffin wax. Human hands never touch the inside of these cups. Folded for compactness, yet they will not collapse in use —remain waterproof for 24 hours.

Ready For Use.

Big business and handsome profits await paper dealers who sell Vortex Paper Cups. Factories, offices, and every place where water is dispensed, are ready prospects.

Write for full description, prices, territory, etc.

The VORTEX MFG. CO., 421-431 N. Western Ave., Chicago, Illinois

SOURCES OF PULP IN NORTH AMERICA

A Compilation of Statistics Relating to North American Resources in Wood and Woody Substitutes for the Manufacture of Paper.

By George J. Druckerman

No attempt will be made in this paper to discuss, at length, the waning of our forest resources, nor to develop reasons for the urgent rehabilitation of our denuded forest areas. Its purposes, merely, will be to present in an orderly fashion and as accurately as possible the facts with respect to kinds, extent and location of the papermaker's raw material in the North American continent. Wherever possible, these data will be tabulated, or indicated by means of curves or diagrams. It is to be hoped that such information, properly presented, will serve to further the trend toward more efficient utilization of the wood supply and greater use of substitutes, so that the price of paper may remain moderate.

To anyone searching for information on this subject, two outstanding facts become obvious: The first, that such information is sadly lacking in completeness, and second, that, whatever there is, is scattered throughout a maze of various literature, which literature is produced by different departments of national governments, or by states, or provinces, or societies, associations or journals, or corporations, individuals, and so on. There have been relatively few efforts at co-ordination. The most recent is a commendable work by Zon and Sparhawk of the United States Forest Service. Coupling a most exhaustive search of all available statistics with the results of their own investigations, they have inventoried the "Forest Resources of the World" in two volumes containing some thousand pages. Royal S. Kellogg, of the News Print Service Bureau, has also written an admirable book called "Pulpwood and Woodpulp in North America."

These works will be used as prime sources of information for this present paper. Other references will be noted wherever made.

It will be well to remove, in the beginning, any illusions one may have as to the unfailing accuracy of the ensuing figures. In dealing with figures relating to such intangibles as the available amount of spruce wood or the annual crop of corn stalks, accuracy merely functions as an ideal goal. It is true, however, that in many cases, the data at hand are compiled from figures of unquestioned reliability as for instance those of pulpwood consumption, and so forth. Again, there may be those that vary within a wide margin, and still others, where results have been obtained merely from estimate. Nevertheless, the attempt is made to record all data as faithfully as possible and to indicate those instances in which the information is questionable.

Physiographic Divisions

A brief description of the physiographic divisions of North America will make more clear the reasons for the distribution of the wooded and non-wooded areas. The continent is essentially divided up into five parts:

1. An Atlantic coastal plain.
2. Eastern mountain region.
3. Central plain.
4. Western mountain region.
5. Pacific coastal plain.

These divisions are irregular in size as well as internal characteristics. The Atlantic coastal plain is narrow in the north and widens considerably southward.

There is a break in the eastern Appalachian range around southern New York.

The Rocky Mountain range is widely spread but with stretches of plain throughout.

Therefore distribution of forests is governed only generally by these divisions. Essentially forests occur in the mountainous regions with coincident high rainfall. The large plains areas of lower rainfall are the great agricultural regions. Wherever conditions were suitable, the forest has given way to agriculture, hence the enormous original forest area has been largely cut down.

Although the map indicates the continent to be practically covered with forest growth, the great bulk of actual wood production issues from relatively small areas. In the order of their importance, these are: The Pacific coastal region; the southern pine region; the northeastern spruce region; and the mixed stands of the Lake States. The large remaining areas produce for local consumption, and their importance lies in that fact.

As to the total areas of forested and non-forested areas in North America various estimates have been given. Since the figures are so large and merely good guesses, they should only serve to convey an idea of relative proportions. About one-third of the North American continent grows wood and the other two-thirds do not.

Wood

Growing wood is distributed over the continent as shown on the general map. Since many attempts have been made to determine this area in square miles, some of the results will be noted here. Their diversity may be indicated by the following figures taken at random from various sources, for the United States (con.), for which there is most information:

Area in forest—1,094,496 sq. mi.; of the total land area 37 per cent[1]
Area in forest— 860,000 sq. mi.; of the total land area 29 per cent[2]
Area in forest— 724,000 sq. mi.; of the total land area 24 per cent[3]
Area in forest— 262,000 sq. mi.; of the total land area 8.7 per cent[4]

Of these figures the second (from Zon and Sparhawk) are the most recent and appear to be the most reasonable estimate, and hence will be used in the table on page 46.

In reading these figures it should be borne in mind that they by no means represent areas of unbroken mature forests. For they include areas cut over, burnt over or otherwise well nigh worthless, but which still remain classed as forest land. Furthermore, the portion potentially for pulp is but a fraction of the total; but that will be dealt with later.

Important Woods Used for Pulp at Present

Since the establishment of the wood pulp industry spruce has been the all-important raw material. Because of its inherent admirable paper making qualities, its abundance, availability and other attributes it has continued to hold its leadership and still remains the standard by which all other woods for paper making are judged. However, it is being increasingly supplemented by other woods,

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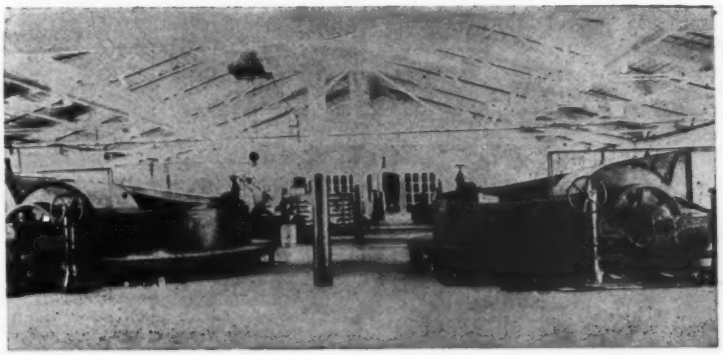
[1]Gannett, Henry—Forests of the U. S. Extract from 19th Annual Report of the Geological Survey 1897-1898, p. 14; (allowing a decrease of 60,000,000 acres since that estimate was made, we would still have something over 1,000,000 square miles).

[2]Zon, R. & Sparhawk, W. N. Forest Resources of the World, Vol. II, p. 519.

[3]Senate Resolution 311—Timber Depletion, Lumber Prices, Lumber Exports and Concentration of Timber Ownership, p. 3, U. S. D. A. F. S. June 1, 1920.

[4]World Almanac for 1923, p. 279. From U. S. Census Returns—1920. Two others—J. Russell Smith in "Industrial and Commercial Geography," 1913, and a F. S. Circular, 1914—agree with (3).

FAMOUS PRODUCTS SERIES No. 25.



Niagara Beaters *are used in making* Artesian Bond

Artesian Bond is known the country over as the "medium priced rag woven bond made with artesian well water." The famous artesian wells of the Whiting-Plover Paper Co. have won this big concern much favorable attention from users of printing.

It is a big factor in the excellence of their products, but fine equipment helps them produce these papers at a reasonable cost and makes it possible for them to sell so high a grade at so reasonable a price. A battery of Niagara Beaters is a valuable link in the chain of paper making equipment used in producing Artesian Bond. Write for full information regarding these beaters, that increase production and make better paper at a lower cost.

WHITING-PLOVER PAPER CO. STEVENS POINT, WIS.

ARTESIAN BOND

Valley Iron Works Co.

Plant: APPLETON, WIS. *New York Office:* 350 MADISON AVE.

TABLE I

Wooded Areas of the Continent, by Countries

(From Zon-Sparhawk—"Forest Resources of the World")

	Square Miles	Per cent of Total Area
United States (Continental)	860,000	28.9
Canada[5 6]	978,000	25.0
Alaska	119,000 to 231,000	19.0 to 40.0
Mexico	120,000	15
Central America	159,230	67
British Honduras	5,950	75
Costa Rica	14,000	75
Guatemala	31,200	65
Honduras	37,100	80
Nicaragua	35,000	70
Panama	27,850	86
Salvador	8,130	17.8
West Indies	34,700	36
British West Indies	2,661	25
Cuba	21,800	46
Dutch West Indies	.....	..
French West Indies	66	17
Haiti	8,000	60
Porto Rico	670	20.1
Santo Domingo	1,480	77
Virgin Islands	23	19
Total	2,326,930	33.3

[5]Including Newfoundland, Labrador.

[6]The Department of Interior of Canada estimates her total forest area to be 1,975,711 square miles.

which are gradually growing in importance. In 1907, 68.2 per cent of the total number of cords used was spruce;[7] at the present this figure has shrunk to 55 per cent. Of these other woods, the most important are hemlock, balsam fir and poplar, furnishing 16, 7, and 6 per cent of the total number of cords used, respectively.[8] These four then supply some 84 per cent of the pulpwood consumed. The remaining 16 per cent is furnished by perhaps twenty or thirty odd species. For the purposes of this paper these will be divided into two groups, setting the division arbitrarily at an annual consumption of 10,000 cords. Those producing 10,000 cords or more of pulpwood every year will be ranked, in the order of their importance, after spruce. Those producing less than 10,000 cords annually will be classed under "other wood sources of raw material" and discussed separately. Naturally, only woods of sufficient abundance will warrant any consideration as a possible source of supply. Practically all woods can be made into paper, but the majority are of only academic interest and will never figure in the pulp and paper industry.

In the following tables the unit of expression used will be the cord. Estimates of standing timber are customarily expressed in board feet, or occasionally in cubic feet, but in dealing with raw material for the paper industry the cord is almost invariably used, and hence will have most significance to those interested in this paper.

The equivalent of a cord is variously estimated to be from 500 to 750 board feet, log scale. Five hundred is perhaps the better average figure and it will be used here in the necessary conversion. In converting cubic feet to cords, the factor used will be 90. The average wood pulp acre will be figured to contain five cords.

Table 2 shows the total stands of the more important pulpwoods in North America according to countries. Table 3 shows the total stands in the United States by regions.

The figures in these two tables represent the most recent and authentic estimate of the total stands of merchantable timber of the different kinds listed. These kinds, as above noted, are the ones in which the present woodpulp manufacturers are most interested. They total something over six billion cords, of which the United States has more than two-thirds.

A word was said in an opening paragraph regarding the reliability of figures quoted in this paper. It should, therefore, be noted here that of all the figures in the above tables, those that hold the least water are the ones dealing with the southern part of the continent. Information on timber statistics from the countries south of the Rio Grande, including Mexico, those of Central America, and the different islands comprising the West Indies, is meager and

TABLE II

Total Stands of Pulpwoods in North America (1,000 cords).

Kind	United States	Canada[1]	Alaska	Mexico	Central America	West Indies	Total
Spruce	132,788	700,000	23,100	.....	.....	.....	855,888
Hemlock	252,976	142,800	115,500	.....	.....	.....	511,276
Balsam	11,000	208,600	.....	.....	.....	.....	219,600
Poplar	21,648	234,800	.....	.....	.....	.....	256,448
Jack Pine[2]	99,838	253,600	.....	.....	.....	.....	353,438
Yellow Pine[3]	1,014,538	8,400	.....	.....	.....	.....	1,022,938
Yellow Poplar	19,222	.....	.....	.....	.....	.....	19,222
Tamarack	.....	13,700	.....	.....	.....	.....	13,700
White Fir	182,698	.....	.....	.....	.....	.....	182,698
Gum	88,444	.....	.....	.....	.....	.....	88,444
Cottonwood	18,000	1,500	.....	.....	.....	.....	19,500
Birch	.....	57,600					
Beech	181,568	13,900	.....	.....	.....	.....	286,068
Maple	.....	33,000					
Chestnut	38,638	.....	.....	.....	.....	.....	38,638
Douglas Fir	1,191,010	157,000	.....	.....	.....	.....	1,348,010
White Pine	161,056	117,400	.....	.....	.....	.....	278,456
Pines (various species)	.....	.....	.....	260,000	200,000	40,000	500,000
Cedars (various species)	.....	.....	.....	100,000	100,000	30,000	230,000
Total	3,413,424	1,942,300	138,600	360,000	300,000	70,000	6,224,324

[1]Including Newfoundland and Labrador.
[2]Including Lodgepole Pine.
[3]Including Western Yellow Pine.

[7]Pulp Wood Consumption 1910—Bureau of Census, Department of Commerce and Labor.

[8]H. Vettel—Thesis. Location, Supply, Management of Chief Pulpwood Supplies in U. S. 1921.

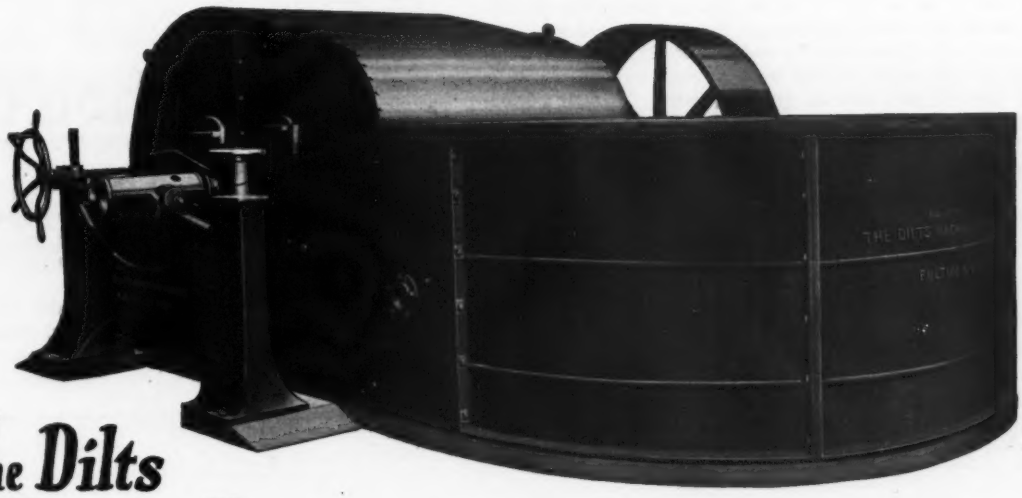
TABLE III

Total Stands of Pulpwoods in the United States (1,000 cords).

Kind	New England	Middle Atlantic	Lake	Central	So. Atlantic E. Gulf	Lower Mississippi	Rocky Mts.	Pacific Coast	Total
Spruce	37,942	5,896	7,544	.....	1,762	.....	52,934	26,710	132,788
Hemlock	3,608	10,072	36,602	7,820	3,690	.....	2,184	189,000	252,976
Balsam	11,000	.....	.....	.....	.....	.....	.....	.....	11,000
Poplar	748	26	1,998	4,262	2,680	11,934	.....	.....	21,648
Lodge Pole[1]	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jack Pine	.....	.....	12,000	.....	.....	.....	78,706	9,132	99,838
Yellow Pine	.....	.....	.....	730	242,884	271,768	132,250	366,906	1,014,538
Yellow Poplar	.....	252	14	10,386	8,040	530	.....	.....	19,222
Tamarack	.....	.....	.....	.....	.....	.....	.....	.....	.....
True Firs	.....	.....	.....	.....	.....	.....	17,740	164,958	182,698
Gum	.....	352	.....	7,456	26,800	53,836	.....	.....	88,444
Cottonwood	.....	.....	.....	.....	.....	.....	.....	.....	18,000
Birch Beech Maple	16,286	33,794	72,152	41,010	9,044	9,282	.....	.....	181,568
Chestnut	1,920	7,508	.....	15,978	13,232	.....	.....	.....	38,638
Douglas Fir	.....	.....	.....	.....	.....	.....	73,868	1,117,142	1,191,010
White Pine[2]	19,632	8,074	16,000	1,030	2,178	.....	37,173	76,970	161,056
Total	91,136	65,974	144,310	88,672	310,310	347,350	394,854	1,950,818	3,413,424

[1]Includes Jack Pine.
[2]Includes Norway, West, White and Sugar Pines.

Dilts-



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scant. Yet for purposes of completeness figures have been quoted for those countries in the above table. That there is lots of timber there is beyond question, but the variety of species is so wide, and stands so mixed, especially in the more southern portions, that it would be asking too much for an account of the composition of forests in these countries that should approach in any degree the actual facts. The best that has been done, in most instances, is an estimate of the proportion of the area in forest with an indication of the per cent composition of the more important species. Of interest here, will be only the more important softwoods, which are best grouped under the two heads of pines and cedars. Little of this wood is being used for pulp at present. There is a good-sized mill in San Rafael, Mexico, besides several smaller ones and a small 35-ton mill in Cuba. Outside of these there are none. Little or no wood is exported from these southern countries to be used for pulp. But the wood is there and it is fitting that some idea of its abundance should be given. Perhaps there will come a time when it will play a more important role in furnishing America its paper.

That Part of the Total Amount of Pulpwood Is Essentially Available

Having recorded the total amount of merchantable pulpwood trees now standing, it must next be considered what portion of this total the pulp mills can count on. It is obvious that the pulp mill must play second fiddle to the saw mill. The largest and best trees are made into lumber, the smaller and poorer ones into paper.

Some idea of the small part of the total woods cut that is made into paper can be drawn from the following table:

TABLE IV

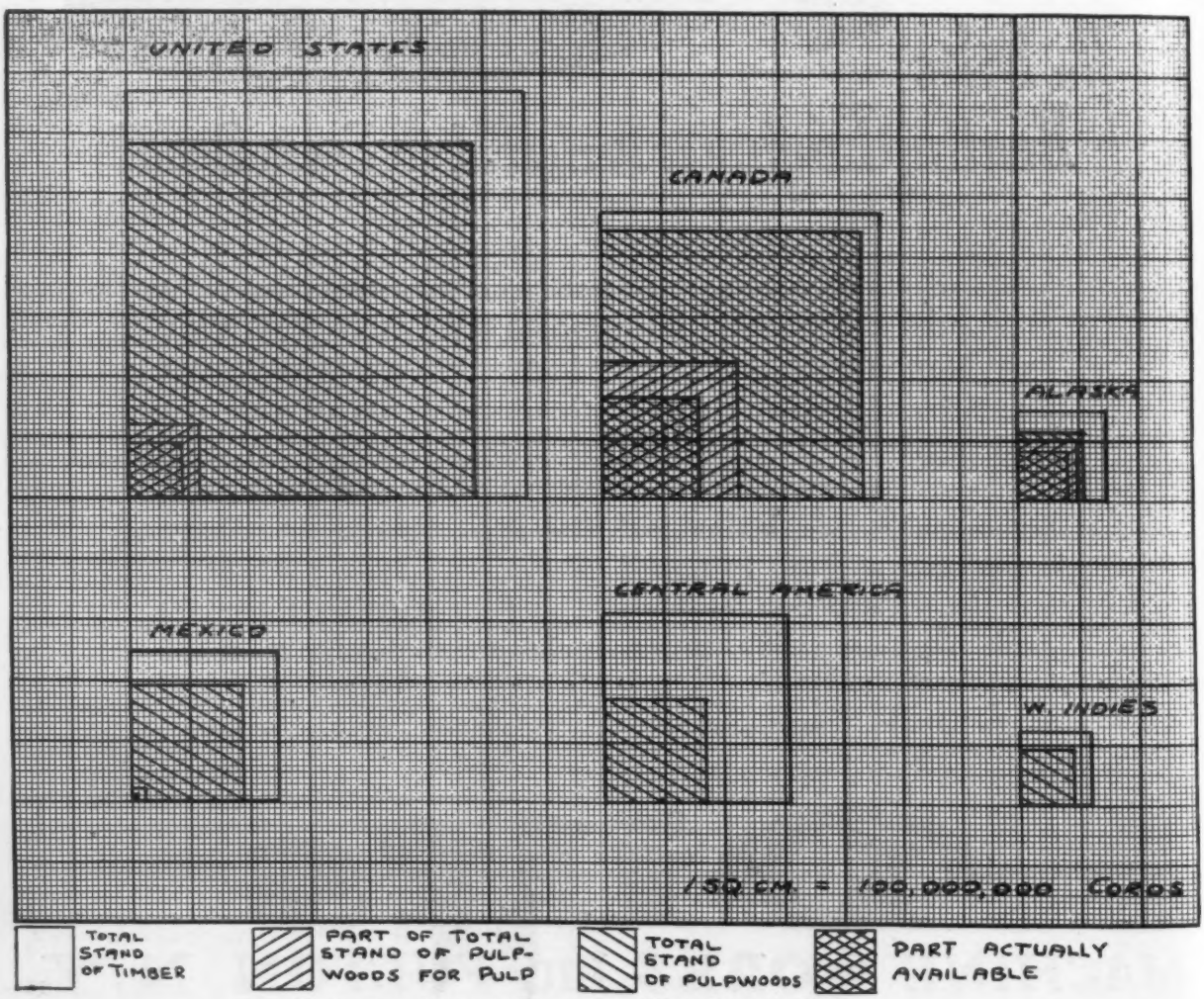
Consumption of Wood in U. S.—Cu. ft.

Pulp	585,000,000	2.6%
Lumber	8,250,000,000	
Firewood	9,500,000,000	
Other uses (poles, posts, etc.)	4,000,000,000	
	22,335,000,000	U. S. D. A. Yearbook 1922.

These figures include all kinds of wood many of which are not used in the paper industry, hence the figure 2.6 can not be applied to those species which supply our pulp needs.

In Table 5 will be shown what proportion of those species with which we are concerned can be classified as wood for pulp. Where other information is not available, the figures quoted will be computed by carrying the per cent of average annual total consumption that is used for pulp to total stand.

It is evident that that part of a stand which can be classed as pulpwood will vary with location, age of stand, intensity of utilization, variation in relative price between lumber and pulp and time of year cut, beside other factors, hence the figures noted cannot be



Relation of Available Pulpwood to Total Stand of Timber

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applied to any certain locality, except that locality represent the average of the entire country, which in all probability it will not.

As in all other instances, spruce leads here also. Over half of the eastern spruce cut every year finds its way to a grinder or chipper.

In computing the table the tendency was to allow pulpwood as great a portion of the forest as possible, consistent with present estimate of stand and usage.

Regarding Mexico, probably less than 1 per cent of her timber cut is being used at present for pulpwood, but that figure will be used including her stands in the tables.

In Central America and the West Indies no pulpwood is cut as such. Their potentialities will be included in a later paragraph.

From Table 5 it is apparent that although there are in North America over six billion cords of wood in standing timber that may be classified as possible pulpwood, only about 12 per cent of this total, or some 750,000,000 cords, is all that the paper industry can claim as its raw material, according to present practice and usage. The much larger portion, or 88 per cent, is or will be drawn by the lumber and allied industries.

Per Cent Actually Available

Nor can we stop here, for 750,000,000 cords represent a portion of total standing timber much of which is inaccessible, from a present merchantable point of view. To determine what part of the total stand is accessible is largely a matter of guesswork. Yet reasonable guesses have been made, and Table 6 shows how inaccessibility reduces still further our practicable stock of pulpwood material.

Table 7 is a graphic description of the relation of the available or presently accessible pulpwood to the total stand of timber in the countries of North America.

It is evident that with decrease in supply of wood and increase in price much of the so-called inaccessible or unmerchantable wood will become merchantable. But this increase in merchantability has its limits, and it does not seem likely that it will ever approach three-fourths of the total stand.

TABLE V

That Part of the Total Stands of Pulpwoods That Will Be Made Into Pulp According to Present Practice

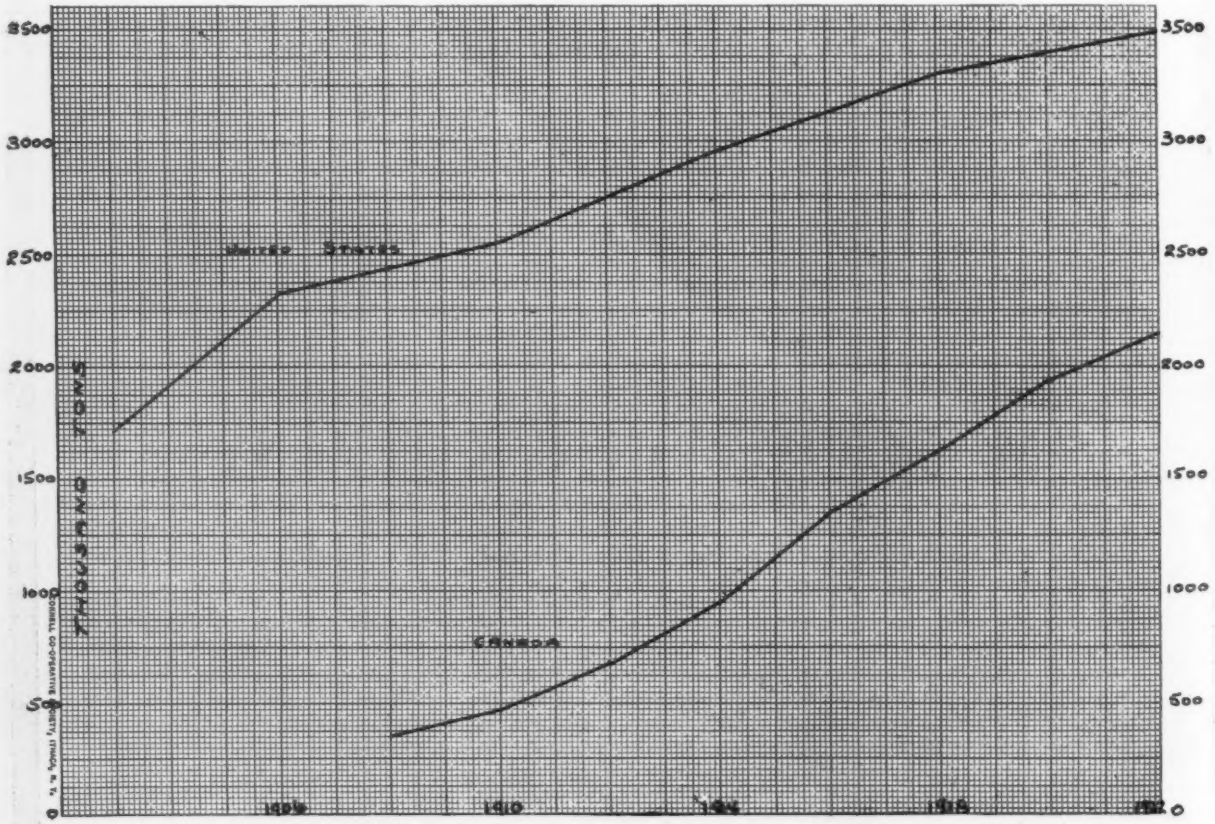
Kind of Wood	United States %	United States 1,000 cords	Canada %	Canada 1,000 cords	Alaska %	Alaska 1,000 cords	Total 1,000 cords
Spruce:							
White	70	38,400					
Red	50	5,600					
Sitka	7		48	504,960	80	112,000	691,360
Balsam	70	8,400					
Eastern Hemlock	30	22,000					
West. Hemlock	3	7,600					7,600
Rem. Softwoods	1	26,500	2	10,960			37,460
Hardwoods	2	7,500	½	1,700			9,200
Totals		116,000		517,620		112,000	745,620
Adding 1% of Mexico's total							3,600
							749,220

TABLE VI

Accessible Stand

Country	Stand of Pulpwoods as per Table 5	Per cent accessibility from present standpoint	In thousands cords
United States	116,000	75	87,000
Canada	517,600	50	258,800
Alaska	112,000	75	84,000
Mexico	3,600	40	1,440
Total	749,200	Average per cent 57.6	431,240

(*Continued on page 82*)



From: Kellogg, R.S. Pulpwood and Woodpulp in North America, p. 30.

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NOTICE is hereby given that on the 9th day of June, 1924, at 11 A. M., at the office of Robert P. Stephenson, Referee in Bankruptcy, 32 Broadway, New York City, there will be offered for sale the paper mill properties and water rights known as the Hadley Mill of the Durham Paper and Pulp Company and the U. S. Paper Manufacturing Corporation.

These properties are located at Hadley, New York, at the intersection of the Hudson and Sacandaga Rivers and consist of a large and well equipped paper mill, railroad siding, mill dwellings, garage, etc., and a dam and valuable riparian rights on the Hudson River.

Further description of, and full information as to, the properties to be sold can be obtained upon application to the undersigned Trustee in Bankruptcy.

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Attorneys for Trustee

Charles A. Marshall
Trustee in Bankruptcy

DURHAM PAPER AND PULP COMPANY

U. S. PAPER MANUFACTURING CORPORATION

Editorial

Vol. LXXVIII New York, June 5, 1924 No. 23

HENRY J. BERGER, Editor

TEN YEARS AS PRESIDENT

The retirement of Mr. Philip T. Dodge as president of the International Paper Company is the day's big news in the paper industry. For ten years he has borne the burden of that arduous position and the years have been ones of mental strain and physical exaction to him as well as years of progress and accomplishment for the company.

President Dodge came to the International in 1913 at a time when the affairs of the company called for a firm hand and a strong mind. He had both. From the beginning he displayed a rare ability for coping with the many large problems which were constantly facing him. He approached these with a natural aptitude for grasping every essential and for getting a correct perspective. With an open mind he courted the opinions of those who held divergent views on any question but, when finally convinced that he had arrived at the correct solution of any problem, he stood firm and unmovable no matter what odds were arrayed against him.

His personality was one which has been felt throughout the whole structure of the International. He never shirked work. Those who know him best declare that he never looked for the shortest way or the quickest way to do a thing. So thorough has he been at all times in all business affairs that to him the best way to do a thing was the only feasible way to do it and all other ways, as far as he was concerned, were eliminated.

But the PAPER TRADE JOURNAL has no desire to eulogize a man whose works are so well known. Those works are a greater eulogy to him than anything we could of our own inspiration transcribe to this page. They speak louder than words and will be measured by the future even more than they can be measured now in the past or the present.

The magnitude of the great business done today by the International is indicated by the fact that in 1923 that company produced 537,927 tons of paper which, by the way, is double that of any other producer in the world. Of that amount 352,518 tons were news print and the balance higher grade paper of various classes.

The company owns and operates fifteen paper mills, fourteen in the United States and one in Canada; six pulp mills, one kraft pulp mill, 10 sawmills, 17 rossing mills and eight hauling-out and cutting-up mills. The company has extensive water power resources and its power development has been extensive.

One of the outstanding accomplishments of President Dodge's administration has been the construction of the Three Rivers, Canada, mill. The mill was designed for a normal production of 240 tons per day and is now producing 310 tons per day. From 1913 to February, 1924, the company expended for construction about $23,853,000.

It is impossible here to go into detail regarding the company's expansion or to tell in detail of the manner in which the various properties have been improved. But, in spite of the labor entailed by this remarkable program of expansion, President Dodge has had time to interest himself in more humanitarian activities touching the interests of the International and its employees. Group insurance and welfare work have been among these. Every effort has been taken to safeguard the health and lives of International employees. President Dodge has also supplanted impossible housing conditions in some of the mill towns with a modern policy of industrial housing.

Briefly stated this is some of the work President Dodge has helped carry through. It is a record of achievement which will bear close scrutiny. It has meant hard work and lots of it and it is not to be wondered at that President Dodge has repeatedly asked to be relieved of the burden, a request which only now has been acceded to. It has been a work for the future and the future will participate in the reward of his labors. For that reason President Dodge can leave his desk to his successor with a consciousness of work well performed.

BUSINESS TO HOLD TO MIDDLE COURSE

Business, in the Eastern Atlantic States at least, will hold definitely to the middle course for the next two to three months. This is the general conclusion reached by twenty-five commodity committees of the Atlantic States Shippers Advisory Board who made detailed reports of their specific industries at the last meeting of the board held early in May at the Commodore Hotel, New York City.

As a voluntary organization of railway shippers formed for the purpose of adjusting transportation disputes informally, by direct conferences with railway officials, the Atlantic States Shippers Advisory Board is in a unique position to make a close check-up of industry.

Five hundred of the largest shippers and railway officials of the country attended the last meeting of the board whose jurisdiction covers New York, Pennsylvania, New Jersey, Maryland, Delaware and part of Virginia.

One of the board's major purposes is to predict freight car requirements for a period of sixty or ninety days so that the Car Service Division of the American Railway Association may allocate cars more intelligently and thus avoid all danger of congestion and delays. This is accomplished through commodity committees composed of definable representatives of all the industries. They make an actual survey, by direct questionnaires to individual concerns of conditions in their industry as well as advance business on hand.

The composite picture which these facts provide indicates that business men are exercising caution to avoid over-expansion, both of production and distribution. Manufacturers, it was brought out, are making efforts to reduce output to correspond more nearly with consumption. This is considered a healthy tendency for obviously business men are reducing to a minimum any chances of a sudden deflation, and at the same time they are keeping prepared for greater activity.

All of the shippers praised the quality of the car service which is now being given. Delays in transit are few and the amount of demurrage collected is shown to be negligible. By and large both the buyers and sellers of transportation draw a picture which seems to warrant a reasonable amount of optimism about the future course of trade rather than an undercurrent of indecision.

Discuss Imports of Paper and Pulp

At a conference of manufacturers on Thursday of last week in the offices of the American Paper and Pulp Association, to discuss the importation of foreign paper and pulp, Henry W. Stokes of Philadelphia, president of the Association, declared that the American paper and pulp manufacturers are being taxed by the government to put themselves out of business. Mr. Stokes made this statement:

"The customs situation as regards the proper assessing of import rates on Swedish, Norwegian, Finnish, and German, etc., pulp and paper is of vital interest not only to the American pulp and paper manufacturers but to all concerns doing business with such manufacturers.

"The reading of the evidence taken at the public hearing at Washington recently on Section 28 of the Jones bill, discloses a perfectly amazing situation. A prominent importer testified that he had contracted for and expected to import into the United States during 1924 a total of 700,000 tons of foreign pulp, principally Scandinavian. This is coming in at such prices that the American mills cannot compete—pulp being on the free list.

"It would be bad enough if this were being brought in by foreign-owned ships but the distressing circumstance is that the United States Shipping Board is carrying this pulp, taking a loss of $25,000 on each ship per voyage figures about $4.00 per ton of pulp, such loss comes out of the United States Treasury and in turn, is charged back proportionately to the American pulp and paper manufacturers. Therefore, the American pulp and paper manufacturers are paying taxes to put themselves out of business. Can you conceive of anything so absolutely unfair and ridiculous as to permit the use of American ships for this business? The answer, of course, is that these importers are using United States Shipping Board ships because they operate at lower freights, whereas if the Shipping Board withdrew the ships, they would have to use foreign ships and have to pay higher freights, which would be at least that much protection to the American industry.

"Another amazing feature of this hearing is that notwithstanding the frightful blow this arrangement delivers to the laboring people employed in American mills, the transportation companies bringing the wood down from our forests and delivering the finished product to points of consumption, no representative of such interests appeared at the meeting to show the true facts in an effort to correct the trouble and apparently no one of the Congressmen at the hearing had been posted by any of the above interests so that it seems to me that this intensely interesting situation has been woefully neglected."

The meeting was in connection with the work of the American Paper and Pulp Association in combatting of abuses under the customs laws, under which the American manufacturers are facing mis-classification, undervaluation and dumping of foreign papers. Mr. Stokes was authorized to name a committee to take entire charge of this campaign.

Saranac Co. to Make Paper in Four Weeks

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., June 5, 1924.—While manufacturers elsewhere are closing down their plants for inventories and complaining of the slackness of business, the backers of the Saranac Pulp and Paper Company of Plattsburg are pushing ahead rapidly and expect to be running night and day with a force of 75 men within four weeks.

At the old Lozier plant at the north end of the city of Plattsburg, empty for 15 years except during the hectic war time when the American Condenser and Engineering Company kept it open, all shafting and belting has been pulled out and the machinery will be run by electric motors of which there are about 70 throughout the plant. They vary from 200 to 500 horsepower. These improvements will make the plant one of the most modern in the East.

Only completion of the power plant at Treadwell's Mill is delaying the operations and the vice-president R. H. Guibord said that he expects current will be turned out from the powerful hydro-electric motors during the next three or four weeks. About 3,600 horsepower will be developed, all of which will be utilized by the company.

The company will manufacture ground wood, the basic ingredient of paper, at the mill on the lake shore. This will then be transported to the other mill across the road, where various grades of wrapping and tissue paper will be manufactured such as napkins, paper towels, paper to be sold and converted into waxed paper, toilet paper etc.

The Saranac Pulp and Paper Company will have as the active plant head and general manager H. P. G. Nostrand who is president of the company. He is experienced in the paper business, having had much experience with the Stevens & Thompson Company of Greenwich, N. Y., as the manager of the company.

The company will have a strong Plattsburg tinge as J. W. Guidord is treasurer and R. H. Guidbord vice-president of the $1,000,000 corporation.

Vice-president Guibord said that while some skilled labor would be imported it was the intention of the employers to train Plattsburg men for the work, thus keeping the concern a local one.

There will be two Jordon engines, four beaters, and two machines of different types. One will turn out an 83 inch sheet. It was made at the Sandy Hill Iron and Brass Works.

The other is a Yankee machine, made at the Beloit Iron Works. It will turn out a 132 inch sheet.

The present company is an expansion of the old Saranac Pulp Company which had been in existence about 20 years and confined itself to the manufacture of ground wood. The Lozier site was acquired last year and work on the hydro development was begun at once.

Changes in Interlake and Consolidated Companies

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., June 2, 1924.—Important changes in the personnel in the office of the Interlake Pulp and Paper Company plant at Appleton, which is a division of the Consolidated Water Power and Paper Company, have been made recently. H. A. Babcock, manager of the mill for between three and four years, has resigned and about the same time Vance P. Edwardes, superintendent of the digester department, and C. L. Bachelder, superintendent of the new bleach plant, also tendered their resignations. J. T. Whelan, office manager, resigned a few weeks ago. Other employees in the office also have tendered their resignations.

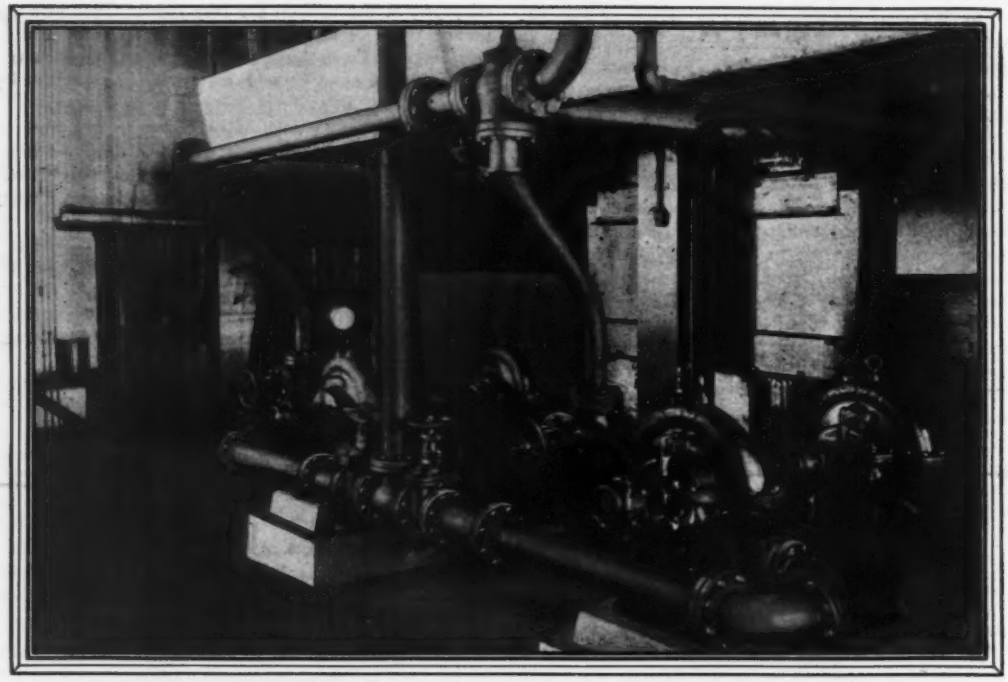
Mr. Babcock and Mr. Edwardes recently returned from Europe where they spent several weeks making a study of the pulp manufacturing situation. There have been rumors that changes were to be made in the mill but nothing concrete has been announced. It was said that the digester room was to be rebuilt and there were to be changes in the power plant.

Lowe Paper Co. Lets Contracts for Additions

RIDGEFIELD, N. J., June 2, 1924.—The Lowe Paper Company, River street, has awarded a general contract to the H. Wales Lines Company, Meriden, Conn., for the erection of its proposed mill additions, consisting of three one-story buildings, 40 x 260 feet, 48 x 120 feet and 50 x 94 feet, to cost approximately $150,000. Considerable additional equipment will be installed. Frederick L. Smith, 21 East 40th street, New York, is architect.

Additions to Champion Fiber Plant

CANTON, N. C., May 31, 1924.—Extensive additions to the plant of the Champion Fiber Company, the sale of which to the Champion Coated Paper Company at Hamilton, Ohio, was recently reported, are announced. The additions will include installing a Fourdrinier paper machine and providing a finishing room with the necessary equipment of cutters, trimmers and super calenders.



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Conducted by W.G. MacNAUGHTON, Secretary

BIBLIOGRAPHY OF PAPERMAKING FOR 1923

TAPPI Committee on Abstracts and Bibliography, Contribution No. 42.

COMPILED BY CLARENCE J. WEST, CHAIRMAN OF THE COMMITTEE, AND A. PAPINEAU-COUTURE.

(Continued from last week)

Sodium Silicate

Stericker, Wm.

Silicate of soda in the paper industry.

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(*To be continued*)

Cymene Recovery Apparatus

At this plant we have trouble occasionally with tough cooks and have come to the conclusion that the trouble is due to the presence of spruce turpentine, or cymene, in the cooking acid.

I am therefore interested in learning all possible in reference to cymene, especially how it can be collected and removed from the cooking acid.

I understand that there is an apparatus which skims the top of the acid tank, thereby removing the cymene, but in order to use such an apparatus it is necessary to have the cooking acid remain quiescent without any agitation in the tanks for at least an hour.

Inasmuch as we blow our top relief into our cooking acid tanks, and as our tanks are limited in capacity, it is impossible for us to hold the cooking acid in the tank dormant long enough to allow the separation of the cymene.

We operate eight digesters, and there is top relief of gas into our cooking acid tanks practically continuously. This relief of course causes agitation, and therefore, as stated above, prevents the separation of the cymene.

For this reason the skimming process is not applicable to our plant.

I understand there is also an apparatus, fashioned similar to a steam separator, which is used for the separation of cymene.

I also understand that all of the cymene comes off at a certain interior temperature in the digester by operating the top relief valve.

It has occurred to me that if we knew this temperature point, and then could relieve into an apparatus as outlined above for a few minutes or so, we could then remove all of the cymene from the inside of the digester, and prevent the admixture of the cymene with our cooking acid in the tanks.

We could appreciate it if you would advise us fully, as I would like to read upon any articles on cymene, for reduction and separation from the cooking acid.

I would also like to get the names and addresses of any concerns who make an apparatus to separate the cymene, other than by skimming process.

A MEMBER.

DECAY OF WOOD AND GROUNDWOOD PULP

Relation of Loss in Weight to Chemical Properties

By Mark W. Bray[1]

In a recent article entitled "Chemical Changes of Groundwood During Decay"[2] the writer and a collaborator reported the more important chemical changes, together with the losses in weight, which took place in groundwood as a result of infection with four different fungi in pure culture.

The data indicated that the hymenomycetes causing brown rots, with which the pulp samples were inoculated, acted to a greater extent on the cellulose of groundwood than on the lignin. It was pointed out that the cellulose lost, in the case of one sample of extremely decayed pulp, was 54.0 per cent on the basis of the original sound material with an accompanying loss of but 3 per cent of the lignin. This lignin loss was practically accounted for in one typical case by the loss in the methoxyl content of the decayed material.

Although the loss in weight and the chemical changes which the groundwood underwent varied with the nature of the organisms, further study of these and other data similarly obtained indicate that for the species of wood and the types of decay considered there exist certain constant relationships between the loss in weight, the solubility of the material in a 1 per cent solution of caustic soda, solubility in hot water, an amount of cellulose and of lignin in the decayed material. A study of these relationships forms the subject of the present paper.

Discussion of Results

The chemical properties of the various samples of pulp, as shown by present-day methods of analysis, are reported in Table 1[3], where the values are based on the weight of the sample analyzed, and in Table 2, where the same values are based on the weight of original sound material.

Fig. 1, curve 1, shows the relation between the solubility of the decayed material in 1 per cent caustic soda solution and the loss in weight during decay, which loss is due to the production of gaseous material and will be referred to as the "volatile loss." For the particular woods and organisms used, a fairly smooth curve may be drawn through the points obtained from the data reported in Table 1. With sound groundwood the solubility in alkali is approximately

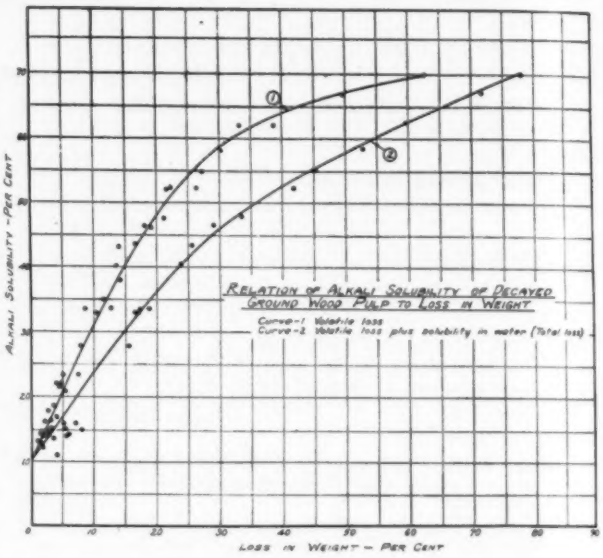

FIG. 1

10 per cent, and the curve is drawn so that this point represents zero volatile loss. The indication is clear that a definite loss in weight

[1]Chemist in Forest Products, U. S. Forest Products Laboratory, Madison, Wisconsin.

[2]Bray and Andrews, J. Ind. & Eng. Chem., 16, 137 (1924).

[3]The experimental data reported in Tables 1 and 2, upon which the discussion in this paper is based and the curves constructed, were presented in a manuscript which has been submitted for publication as a bulletin of the U. S. Department of Agriculture, entitled "Control of Decay in Pulp and Pulpwood," by Kress, Humphrey, Richards, Bray and Staidl. The pathological work was carried out by C. A. Richards, Assistant Pathologist, Office of Forest Pathology, Bureau of Plant Industry, Madison, Wisconsin.

TABLE I.—Chemical properties of decayed groundwood pulps. Data based on weight of samples as analyzed.

Sample No.	Incubation period Months	Organism or culture No.	"Volatile loss" %	Cold water soluble %	Hot water soluble %	1% alkali soluble %	Lignin %	Cellulose %	"Total loss" "Volatile" loss" + hot water soluble
2544	0	Sound pulp	0	0.0	1.00	10.1	29.7	60.0	1.0
26	6	82219-15	18.13	6.1	11.1	46.3	35.3	43.5	29.23
25	9	82219-15	21.13	7.6	13.3	47.7	36.0	42.5	33.43
24	12	82219-15	26.39	8.8	15.5	52.1	39.1	37.8	41.89
100	6	4620-2	27.13	11.0	18.0	54.9	38.0	36.7	45.13
102	12	4620-2	49.45	14.8	22.2	66.8	53.4	21.8	71.65
182	3 yrs.	4620-2	62.40	...	15.4	70.0	71.0	16.1	77.8
106	6	4620-1	22.20	12.3	17.7	52.4	39.5	37.3	39.9
107	9	4620-1	33.11	16.6	22.8	62.2	43.1	27.2	55.91
108	12	4620-1	38.63	14.9	21.2	62.0	46.5	27.6	59.83
130	6	Fomes roseus	10.30	3.2	6.4	33.0	34.1	49.4	16.7
131	9	Fomes roseus	12.94	3.7	5.9	33.6	34.9	50.7	18.84
148	6	Peniphora tabacina	13.51	5.6	10.4	40.4	32.1	46.8	23.91
149	9	Peniphora tabacina	19.48	...	9.8	46.2	39.8	43.6	29.28
152	6	61420-7	7.94	4.6	7.7	27.8	31.5	53.0	15.64
157	6	Lentinus lepideus	21.54	9.6	15.1	52.3	36.7	40.9	36.64
158	9	Lentinus lepideus	30.31	13.9	22.6	58.2	41.1	34.7*	52.91
27	6	102019-1a	1.48	2.4	4.6	14.4	29.1	57.5	6.08
28	9	101019-1a	2.33	2.0	3.6	14.2	29.8	59.4	5.93
32	6	Paxillus panuoides	1.94	0.0	1.7	13.9	29.3	56.8	3.64
30	9	Paxillus panuoides	2.83	0.7	5.2	14.9	29.2	57.5	8.03
31	12	Paxillus	3.55	1.5	4.8	18.5	28.8	58.0	8.35
49	6	10918-10	1.00	0.0	0.6	13.2	29.0	58.3	1.6
50	9	10918-10	1.77	2.0	2.5	12.3	30.1	58.0	4.27
133	6	61520-1	2.09	1.6	3.3	14.3	30.1	58.7	5.69
136	6	61420-3	8.66	5.5	8.7	33.6	32.1	49.4	17.36
137	9	61420-3	13.94	8.1	11.6	43.3	33.9	44.5	25.54
142	6	Corticium galactinum	2.17	1.7	3.1	16.2	29.1	58.5	5.27
145	6	62220-1	3.19	1.2	2.4	15.1	29.4	59.6	5.59
160	6	61420-4	2.77	1.8	3.2	17.7	29.7	57.4	3.97
172	6	6920-1	3.31	2.5	3.8	16.3	29.8	58.3	7.1

* This value appearing in Table 1, Bray and Andrews, loc. cit., is in error.

corresponds to a definite solubility in 1 per cent caustic soda solution.

The solubility of the pulps in hot water, as shown in Tables 1 and 2, increased as decay progressed. Therefore, when the groundwood pulp decayed, it not only suffered a volatile loss, but became subject to a further loss by solution in water. In Fig. 1, curve 2 the sum of these losses, designated "total loss," is plotted against solubility in 1 per cent alkali.

Relationship Betwen Cellulose Content and Solubility in Alkali

Just as there exist definite relationships between the alkali solubility of the infected groundwood pulps and the volatile and total losses respectively, so also there exists a definite relationship between the alkali solubility and the cellulose content. The data showing this relationship are also given in Tables 1 and 2. During incipient decay the organisms examined attacked the cellulose, but exerted apparently little action on the lignin. However, in one case previously alluded to in which the stage of decay was well advanced, there was a small lignin loss which (based on the original sound material) was, within experimental error, equal to the loss in the methoxyl content.

In plotting the values for cellulose against the solubility in alkali, curves 1 and 2 of Fig. 2 are obtained. Curve 1 represents the cellulose content as referred to the sample analyzed; curve 2 to the original sound material. All the values lie very close to the respective curves, and the small divergences are within the limits of experimental error. It is possible, therefore, by determining the alkali solubility of a groundwood pulp infected by any of the organisms listed in Table 1 and then by referring to Fig. 2, to determine the amount of cellulose in the affected sample per 100 parts of the sound pulp from which the affected pulp was obtained. Comparison of this value with the cellulose content of sound pulp will reveal the proportion of the original cellulose that has been destroyed through the action of the decay organisms.

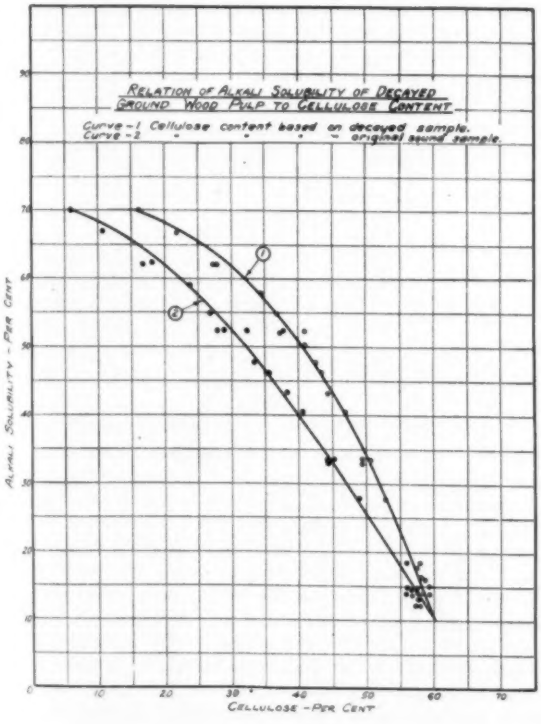
Relation of Alkali Solubility of Decayed Ground Wood Pulp to Cellulose Content
Curve-1 Cellulose content based on decayed sample.
Curve-2 " " " original sound sample
Alkali Solubility - Per Cent
Cellulose - Per Cent

Fig. 2

In comparing curve 1 of Fig. 1 with curve 1 of Fig. 2, it will be noted that the observed loss in weight of the groundwood as a result of decay is less than the loss in the cellulose, up to the point where the "volatile loss" is approximately 50 per cent. This is because the cellulose is attacked by the organisms to such an extent that a part of it is rendered soluble in the process of cellulose determination, but not decomposed into volatile substances. This deterioration of the cellulose is indicated by the increase in the reducing power of the decayed samples as shown by an increase in the copper number[4] and also by a decrease in the alpha—and gamma—cellulose content of the Cross and Bevan cellulose.[5]

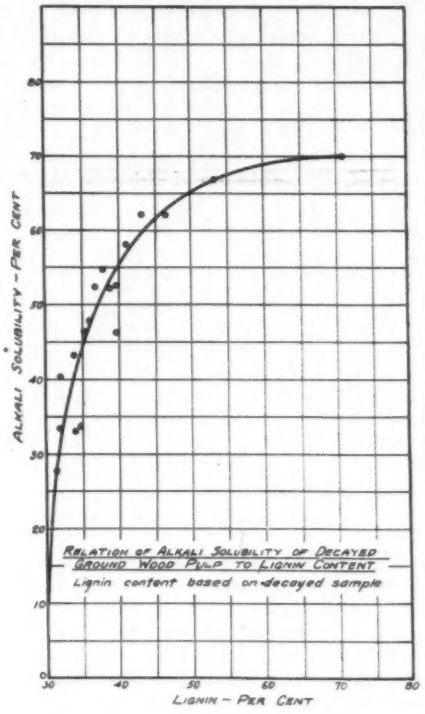
Alkali Solubility - Per Cent
Relation of Alkali Solubility of Decayed Ground Wood Pulp to Lignin Content
Lignin content based on decayed sample
Lignin - Per Cent

Fig. 3

Relation of the Alkali Solubility to the Lignin Content

In plotting the alkali solubility of the decayed samples against their liginin content based on the sample as analyzed, curve 1, Fig. 3 was obtained. This curve shows an apparent increase in lignin with increase in alkali solubility. If, however, the data in Table 2, in which the values for lignin are based on the original sound material, are examined it will be observed that a slight loss in lignin is sustained owing to decay.

Assuming, then, that only a small percentage of legnin is decomposed by these types of organisms, the percentage of lignin to be expected in the decayed sample as analyzed may be calculated approximately by the following formula:

$$\frac{\text{Percentage lignin in sound material} \times 100}{100 - \text{"volatile loss" in sample as analyzed.}} = \text{Calculated percentage of lignin}$$

Possible Application of the Curves—Calculation of Losses in Yield of Groundwood Pulp Due to Decay

By determining the solubility of a sample of wood decayed by any of the organisms listed in Table 1 and then applying the rela-

[4]Bray and Staidl, J. Ind. & Eng. Chem., 14, 35 (1922).
[5]Bray and Andrews (loc. cit.).

tion expressed graphically by curve 1, Fig. 1, it is possible to estimate the loss, which the original sound wood has undergone in reaching the given state of decay. By reference also to curve 2, Fig. 1, it is possible to estimate the further loss the decayed wood, during its manufacture into groundwood pulp, may suffer on account of its solubility in water.

Prediction of Chemical Properties of Decayed Wood by Determining Solubility in Alkali

In applying the curves derived from these experiments on groundwood to pulpwood itself, account must be taken of the removal of water-soluble material during grinding, which tends to make the cellulose and lignin content of groundwood pulp greater than that of the wood from which it is made. In correcting for this removal, groundwood is taken as containing 60 per cent cellulose and spruce wood 58.6 per cent, and the abscissa of each point found on curve 1, Fig. 2, is multiplied by the ratio 58.6/60 for tabulation or plotting. Similarly, the ratio for balsam is 56.75/60.

By means of a determination of the solubility in alkali it is thus possible to estimate without actual analysis the cellulose and lignin content of wood decayed by the organisms listed in Table 1. It should be possible to make similar estimations for wood decayed by any organism which acts upon the wood by attacking chiefly the cellulose. In Table 3 are shown the solubility in alkali and the cellulose and lignin contents, determined experimentally, of 4 samples of spruce wood decayed by organisms whose identity has not been determined; also for a sample of balsam in various stages of decay caused by *Fomes pinicola*. All these samples show a lower cellulose content and a higher lignin content than sound wood, which indicates that the causative organisms have acted upon the wood in a manner similar to those listed in Table 1. In columns 5 and 7, Table 3, are shown the corresponding values for cellulose and lignin calculated from the alkali solubilities by means of the relations shown in Fig. 2 and the lignin formula, respectively. In calculating the lignin values a content of 28.3 per cent and of 31.5 per cent were used for sound spruce and balsam respectively. The close agreement with the values experimentally determined tends to confirm the predicted character of the action of the organisms. It is reasonable to conclude that under these circumstances the relation between solubility and "volatile loss" is equally applicable. The calculated values for the "volatile loss" are shown in column 8.

That the relationships as plotted in Figs. 1 and 2 are applicable only to conditions of decay in which the cellulose is attacked and the lignin practically unattacked is evidenced by lack of agreement between the calculated values and those determined experimentally for samples of spruce decayed by *Trametes pini*, a fungus which apparently removes a greater proportion of the original lignin than of the original cellulose. It is possible, however, that an analogous set of relationships may, by further investigation, be established for the properties of wood decayed by this general type of organism.

TABLE 3.—A comparison of analytical and calculated data of the chemical properties of certain decayed woods.

Sample No.	Wood and organism	Alkali soluble %	Cellulose: By experiment %	Cellulose: By calculation %	Lignin: By experiment %	Lignin: By calculation %	"Volatile loss": By calculation %
2549	Spruce; organism unknown	15.1	54.6	56.6	30.6	29.0	2.5
2545	Spruce; organism unknown	20.6	54.2	54.3	30.5	29.8	5.0
2546	Spruce; organism unknown	39.9	46.9	46.3	35.2	33.2	14.8
2541	Spruce; organism unknown	50.2	42.0	39.5	38.2	36.2	21.8
....	Sound balsam	10.1	56.75	....	31.5	....	....
208	Balsam; Fomes pinicola...	29.4	49.7	49.2	34.5	34.7	9.2
248	Balsam; Fomes pinicola...	34.8	45.3	46.9	36.4	35.8	12.0
249	Balsam; Fomes pinicola...	52.5	35.7	36.6	44.1	41.2	23.5
250	Balsam; Fomes pinicola...	65.5	25.2	23.6	52.8	56.3	44.0
253	Spruce; Trametes pini....	17.5	57.7	55.9	29.6	29.3	3.5
254	Spruce; Trametes pini....	20.3	58.5	54.4	27.5	29.8	4.8
223	Spruce; Trametes pini....	22.9	59.8	53.6	25.8	30.1	6.0

Summary

With the data obtained from the chemical analyses of samples of groundwood pulps inoculated with certain wood-destroying fungi, interrelationships have been established between the following chemical constants: Solubility in hot water, solubility in 1 per cent caustic soda solution, cellulose content, and lignin content; and a relationship of these values to the "volatile" and "total" losses suffered during decay has been demonstrated.

From a knowledge of the solubility in 1 per cent sodium hydroxide solution of a sample of groundwood infected with the types of fungi herein studied, the above values and losses may be calculated with a fair degree of accuracy.

The Brown Corporation, Ltd., La Tuque, Que., which operates a 320-ton sulphate pulp mill, is planning enlargements which will enable it to manufacture a wide range of byproducts. At present the Brown Corporation is manufacturing turpentine. With the addition of further equipment it will be in a position to manufacture chloroform, industrial alcohol, bisulphite of carbonate, caustic soda and bicarbonate of soda.

TABLE 2.—Chemical properties of decayed groundwood pulps. Data based on weight of original sound pulp.

Sample No.	Incubation period Months	Organism or culture No.	"Volatile loss" %	Cold water soluble %	Hot water soluble %	1% alkali soluble %	Lignin %	Cellulose %
2544	0	Sound pulp	0	0.0	1.00	10.1	29.7	60.0
26	6	82219-15	18.13	5.0	9.1	37.9	28.9	35.6
25	9	82219-15	21.13	6.0	10.5	37.6	28.4	33.5
24	12	82219-15	26.39	6.4	11.4	38.4	28.0	27.8
100	6	4620-2	27.13	8.0	13.1	40.0	27.7	26.8
102	12	4620-2	49.45	7.04	11.1	33.4	26.7	10.9
182	3 yrs.	4620-2	62.40	...	6.2	26.3	26.7	6.1
106	6	4620-1	22.20	9.5	13.7	40.8	30.7	29.0
107	9	4620-1	33.11	11.1	15.3	41.6	28.8	18.2
108	12	4620-1	38.63	9.1	13.0	38.0	28.5	16.9
130	6	Fomes roseus	10.30	2.8	5.7	29.6	30.6	44.3
131	9	Fomes roseus	12.94	3.2	5.1	29.3	30.7	44.2
148	6	Peniophora tabacine	13.51	4.8	9.0	34.9	27.7	40.5
149	9	Peniophora tabacina	19.48	4.9	7.9	37.2	32.1	35.1
152	6	61420-7	7.94	4.3	7.1	25.5	29.0	48.8
157	6	Lentinus lepideus	21.54	7.5	11.8	41.0	28.8	32.1
158	9	Lentinus lepideus	30.31	9.6	15.7	40.6	28.6	24.2*
27	6	102019-1a	1.48	2.4	4.5	14.2	29.4	56.7
28	9	102019-1a	2.33	1.9	3.5	13.9	29.1	58.0
32	6	Paxillus panuoides	1.94	0.0	1.7	13.7	28.7	55.6
30	9	Paxillus panuoides	2.83	0.7	5.1	14.4	28.4	55.9
31	12	Paxillus panuoides	3.55	1.4	4.6	17.8	27.7	55.9
49	6	10918-10	1.00	0.0	0.6	13.0	28.7	57.7
50	9	10918-10	1.77	0.2	2.4	12.1	29.6	57.0
133	6	61520-1	2.09	1.6	3.3	14.0	29.5	57.4
136	6	61420-3	8.66	5.0	7.2	30.7	29.4	45.2
137	9	61420-3	13.94	6.0	10.0	37.3	29.2	38.3
142	6	Corticium galactinum	2.17	1.7	3.0	15.9	28.4	57.2
145	6	62220-1	3.19	1.1	2.4	14.6	28.5	57.7
160	6	61420-4	2.77	1.7	3.1	17.2	28.9	55.8
172	6	6920-1	3.31	2.4	3.7	15.8	28.8	56.4

* This value appearing in Table 2. Bray and Andrews, loc. cit., is in error.

COLLOID STUDIES IN ROSIN SIZING*

By Dr. R. Lorenz

PART I—STATISTICS OF ROSIN SIZING

I Introduction

1. Colophony and Its Use.

The resin of conifers is obtained by notching the living trees and gathering the raw turpentine which flows from the wound. Lately, it is also obtained by extraction of chipped stump-wood and other refuse of wood utilization, with benzol and other organic solvents.[2]

Whether or not steam is used in the distillation of the raw pitch, turpentine oil comes over. This, on the whole, consists of a group of isomer hydrocarbons of the formula $C_{10}H_{16}$ (pinenes), colophony remaining behind. This is a pitchy mass of acid nature, hardening at 70 to 80 deg. cent. When hard it is colored yellow to brown, brittle with a conchoidal fracture.

As late as the middle of the last century, colophony[3] was used chiefly for violins. Gradually, the brewers, who formerly pitched their casks with raw pitch, came to adding colophony to the brewers' pitch. It seems to bring about the ageing and foaming properties of alcoholic beverages. In Greece, it is used to "rosin" the wines.

As a substitute for wax and pitch, the cable industries now use a large amount of colophony. In the soap industry, it is used in all cheap soaps. Dispersed in an alkali solution, colophony serves as the so-called rosin soap in bleaching, for, on account of its tendency for auto-oxidation, it acts as an oxygen carrier. Since the colophony, when oxidized, has a brown color, the degree of this self-oxidation is externally visible, although other contaminations can give a brown color.

A rosin soap solution, when shaken with mineral oils, gives a very stable emulsion of finely divided drops of oil. Up to 20 per cent hydrocarbons and phenol can be emulsified in water in this way. "Creolin Pearson" is such a preparation and is used as an antiseptic in veterinary medicine. The rosin soap here has the function of preventing the finely divided oil from coagulating and precipitating. It acts to stabilize the oil emulsion, peptizing the oil.

By destructive distillation, colophony yields "Pinolin," a turpentine distillation product, in the first fraction. Above 230 deg. cent. rosin oil comes off. This is used as wagon grease, lubricating oil, belt dressing, and in printers' ink.

In the sealing wax and also in the lacquer and varnish industries, the rosin acids and the so-called rosin esters, colophony acid salts of the alkali earths and heavy metals, play a part as an enamel of colophony, glycerin, sugar, etc. For example, if the equivalent weight of lime is added to melted colophony, the abietic acid combines with the inorganic base with foaming, forming a white mass, the so-called hardened rosin or rosin lacquer. This is utilized in varnish preparation, and for hardening pitch, paraffin and the like. Chemically, these bodies resemble the calcium salts of the fatty acids.

Likewise the copper, mercury, iron, cerium, lead, cobalt, manganese, and chromium salts of abietic acid are obtained by adding the oxide to molten rosin or by decomposition of colophony dispersed in ammonia water. These salts serve, in the lacquer industry, as the sodium salts in the bleaching process—as an oxidation catalyst, for the unstable linkage of the linoleic acid is easily oxidized and so causes drying. This drying agent suffices in many mixtures. The chrome salt is an excellent rust preventive in iron paint. It prevents precipitation of the moisture vapor of the air by means of its water proofing properties. Water in combination with carbonic acid or hydrogen peroxide of the air seems to be essential to rust formation.

The salts of the poisonous bases and at the same time, with bright colors, as the blue-green copper salt and the white mercury salt, are adapted to boat painting below the water level, since they hinder the attachment of algae, and by their water repellent properties, protect the wood from rot and the iron from rust.

2. Paper Sizing.

Colophony now owes its usage, principally to its water proofing properties. Its general and most important employment is for sizing paper, a usage of recognized world importance and of constantly increasing demand.

It is of interest to remember that about 100 years ago, the paper industry was similar to the peat industry of today—a seasonal industry. To make the paper impervious to ink, India ink and dyes, and to prevent the writing from "feathering" and to give greater strength, better feel, etc., the finished sheet was dipped in animal size, drained and dried. This old process gave good results only in spring and fall. In the summer, the size film dried too quickly and cracked, so that, when written on, the ink penetrated into the sheet. In the winter, the sheet dried too slowly and became moldy. Also such surface sizing had poor erasing qualities.

Hence, a notable technical and economical advancement occurred in 1807 when Illig, a clock-maker of Darmstadt, discovered vegetable sizing and wrote his "Guide to Safe, Simple, and Cheap Method of Sizing Paper Pulp." By Illig's method, the pulp was beaten in the hollander, a solution of rosin in potassium carbonate was added and the rosin was later precipitated in fine division by means of an alum solution. Thus the two were mixed and inseparably held together.

As a result of Illig's method of sizing the pulp and the invention of the paper machine at about the same time, the process of paper manufacture with the limitations of hand production, rose to a large industrial enterprise. Not only the simplification of the manufacturing process, but also the quick turn-over of capital, brought about a significant reduction in production for the finished paper no longer needed to lie for a month until the conditioning of the size seemed complete. At the same time, the seasoning buildings for storing the half-finished product could be dispensed with.

Illig's method also gave incidental sizing troubles. To be able to avoid these and also to know the reasons of this important technical process, the necessity for a scientific sizing theory arose. The Industrial Society in Mullhausen offered a prize for a satisfactory solution of the problem which was won by Casimir Wurster, with his brilliant fundamental work[4] of 1879.

Illig's idea had been that the rosin must be used in alkaline solution in order to obtain good mixing with the pulp, the following precipitation with alum, he conceived, only as removing the solvent; for the sulphuric acid, liberated from the alum, neutralized the alkali of the rosin soap solution and abietic acid, again free, precipitated and sized the pulp.

A few manufacturers and chemists then proposed other theories by which the action of the alum in the hollander brought about an aluminum-rosin compound. This resinate theory was quite generally accepted, when Wurster, by his research, showed that Illig was correct with his hypothesis of sizing with free rosin. The dispute between the resinate theory and Wurster's free rosin theory still continues although the free rosin theory has constantly gained more support by later experiments. Also the writer, as shown later, from colloid chemical considerations would favor a free rosin theory which differs somewhat from Wurster's.

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*Papier-Fabrikant 1923. Translated by Burton L. Kassing, Hammermill Fellow at University of Syracuse.

[1] This work which comes to press in installments was given first prize by the Verein der Zellstoff und Papier Chemiker und Ingenieure and taken for publication as a paper of the society. After publication in Papier Fabrikant, the work will appear in book form.—Verein der Zellstoff und Papier Chemiker und Ingenieure, Publishers.

[2] Austerweil and Roth: Production and Manufacture of Rosin Products.

[3] Κόλλα = glue (colloid-glue-like). Colophony = Sizing Substance.

[4] C. Wurster: Sizing and the Nature of Paper. Reprint Paris, 1910. (Abstracted in Hofman's Handbook of Paper Manufacture.)

3. Colloidal Chemistry and Rosin Sizing.

In Wurster's prize paper, this noteworthy sentence is to be found —"The degree of division of the rosin is of the greatest importance." Already Wurster had recognized the influence of the degree of division or dispersion of the sizing agent on the intimacy of the reciprocal effect with the fibers. Further, M. Senbritzky[5] points out that alum or sulphate of aluminum is therefore well adapted for precipitation of the rosin from its soap, because abietic acid particles precipitated by the reaction of this salt "are just the right size for good sizing." Accordingly, they have the proper degree of dispersion. In fact, it is not indifferent if the material is brought to the reaction in coarse or fine division. Since any reaction necessarily must begin on the surface of the reacting bodies and from there can proceed to the interior, a body will commonly be so much more reactive, the finer it is divided. This surface development of the sizing material is especially important in paper sizing, more important even than its chemical properties for the sizing agent should cover the tangled fibers which have a great surface, with a thin water resistant crust, so that no ink or other aqueous liquid can penetrate. Water resistance alone does not suffice for sizing, but to this chemical property of the sizing material, a colloid or dispersoid chemical property must be added. With a large surface development of the sizing material it can cover all the fibers. This is best obtained, according to Wurster, when the rosin is used in a "milky condition," that is in a colloidal condition. For, in the milky condition, the rosin may be imagined as very finely divided, "in a milky condition, the rosin passes through the interstices of a very fine filter." The milky condition is thus nearly a molecular condition.

Wurster here anticipates the fundamental principle of modern colloid chemistry, the recognition of continuation of division of material until it reaches molecular dimensions. It is, perhaps, permissible to bring out here, briefly, these fundamental concepts of the science of dispersoid systems (dispersoid chemistry) in order to make clear the properties of colloidal condition.

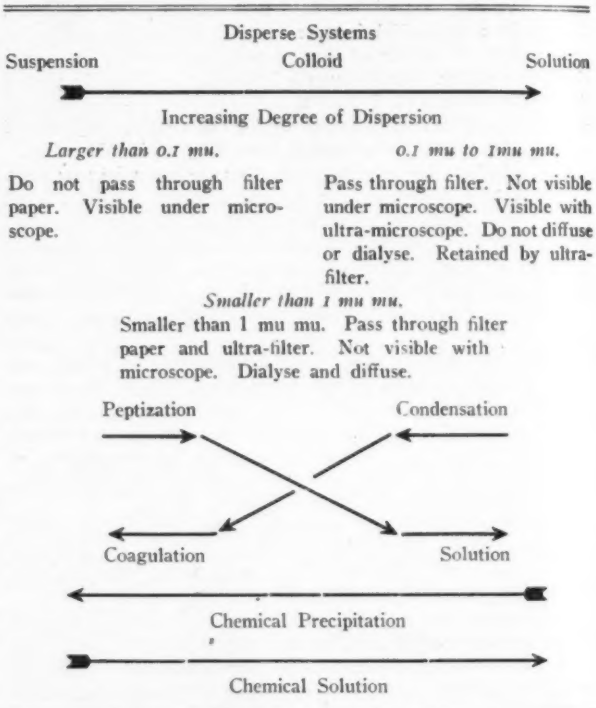
With the most efficient machines, material can be reduced to particles of about 1/100 mm.[6] If salt is dissolved in water, or napthalin in benzol, the dimensions and molecules are about 1/1,000,000 mm. in magnitude, that is, 10,000 times more finely divided (than the machine-reduced particles). We may designate the material prepared in the mill as a coarse suspension when it is mixed with a liquid. A coarse dispersion may be defined as one with particles larger than 1/10,000 mm.; here certain indications may easily place a limit. Thus the boundary of microscopic visibility and the filterability with the best, extra hard filter papers, lies at about 1/10,000 mm., 0.1mu.

But between molecular division (molecular dispersion) and coarse suspension, lies a wide intervening region from 1/10,000 to 1/1,000,000 mm. (0.1 mu. to 1 mu. mu.) and, naturally, particles of this magnitude are conceivable. This magnitude of division must be passed through by every precipitate or solution. This "World of Neglected Dimensions" (W. Ostwald), overlooked by classical chemistry, is the world of the colloid. Not only is it fundamentally possible to bring any and every material to this condition by experimental means, but certain material such as animal glue taking its name from "colloid" can exist only in this condition. These typical colloids are mostly compounds, whose molecules are so tremendously large, that they are of colloidal magnitude. But, as mentioned, practically every substance can be obtained in a colloidal condition by assemblage of the molecules.

Ostwald has made clear the relations of disperse systems by means of the above scheme in which the limits of coarseness and fineness of division of the dispersed condition are shown. From this definition chemical precipitation = condensation + coagulation; chemical solution = peptization + dissolution. Usually such a basis is unnecessary since the complete reaction proceeds immeasurably rapidly, as in all ionic reactions. But there are cases where it is easy to follow such changes. In Section 5, an example of such a gradual precipitation is to be found, in which the condensation and then coagulation are plainly differentiated.

Disperse systems of collodial degree can now assume two forms, *sol* and *gel*. For example, animal size with water as dispersion medium, when heated is a fluid colloidal solution, a sol; at room temperature it is thickly viscose jelly, a gel. Rosin size in cooking is prepared as a gel, nevertheless after dispersion in water in the beater it becomes a sol (size milk). As a sol, the disperse phase has a great freedom of motion and as a gal it is more or less compressed into a stiff structure, which, with many colloids, often developes a beautiful regular honeycomb structure.

The disperse phase, itself, can be solid or liquid. Colloid systems with a solid disperse phase are called "suspensoids," those with liquid disperse phase are called "emulsoids." Animal milk is an emulsoid with colloidal fat particles as disperse phase with water or a weak salt solution, as dispension medium. Size milk is found to be suspensoid, since its disperse phase is in the solid state of aggregation. However, there are continual transitions between suspensoids and emulsoids, as everywhere in colloid chemistry. The more the dispersion medium coats and clings to the disperse phase, the more the suspensoid approaches the condition of an emulsoid, in other words, the more the disperse phase is susceptible to "solvation," the more it resembles an emulsoid. Likewise, an emulsoid will approach suspensoid condition, the more thickly viscous the disperse phase is.


Disperse Systems
Suspension
Colloid
Solution
Increasing Degree of Dispersion
Larger than 0.1 mu.
Do not pass through filter paper. Visible under microscope.
0.1 mu to 1mu mu.
Pass through filter. Not visible under microscope. Visible with ultra-microscope. Do not diffuse or dialyse. Retained by ultra-filter.
Smaller than 1 mu mu.
Smaller than 1 mu mu. Pass through filter paper and ultra-filter. Not visible with microscope. Dialyse and diffuse.
Peptization
Condensation
Coagulation
Solution
Chemical Precipitation
Chemical Solution

Let us turn back from these general colloidal theory definitions to paper sizing. Schwalbe[7], showed, in 1910, that the materials applicable to paper sizing as animal glue, starch, rosin, plant mucilages (gluten, linseed, tragacanth, rubber, gum arabic), viscose, casein, albumin, dextrin, also the mineral sizing agents, as silica jelly and aluminum hydrate are all "typical colloids," which keep their colloidal condition permanently. Also montan wax, lately

[5] M. Sembritzky: See Hofman's Handbook of Paper Manufacture, p. 303.
[6] Considerably finer milling has lately been attained with the Plauson Colloid Mill.
[7] C. G. Schwalbe: Sizing Agents in Paper Manufacture, Koll. Zeitschr. 7, 234, (1910).

come into prominence, as well as the lately tested "rubber latex" are of colloidal nature.

From the preceding theoretical considerations we derive that water repellent substances, possessing great surface development, are adapted to paper sizing although they may differ greatly in chemical respects; this we find confirmed in usual practice.

The present work concerns itself with the colloidal chemistry of sizing. First the colloidal properties of size milk and its components will be taken up. Opposite these researches, that is, Statics of Rosin Sizing, appear the reactions of mixing size milk, pulp and chemicals, thus the phenomena of the Dynamics of Sizing will be analysed more in the light of colloidal chemistry.

Further a limit to the scope of the work is proposed, inasmuch as only the reactions in the beater will be investigated. The process on the drying cylinders of the paper machine, called "frittering" (fritting) which from P. Klemm's research, is very important in successful sizing. Indeed, the writer has been convinced of the importance of proper manipulation of the moist heating of the sheet by an investigation of frittering but must refer to Klemm's original work[8] in "Wachenblatt für Papier-fabrikation" for details. Considered in the light of colloid chemisty, frittering is a desolvation of the finely divided rosin particles in the paper, which should cause the formation of a continuous waterproof membrane which covers the fibers and does not permit penetration by hydrous liquids.

II. Preparation of Pure Raw Material

4. Abietic Acid.

In order to have a chemically definite and reproducible material for investigation, the author did not use colophony but isolated pure abietic acid from rosin.

Crystallizable abietic acid ($C_{20}H_{30}O_2$), melting point 161 to 163 deg. cent., is considered as the main component of colophony in modern rosin researches. As noted above, colophony melts at a much lower temperature, usually about 75 deg. cent., although occasionally samples are found with a melting point up to 120 deg. cent. This depression of melting point is due, in part, to contaminating impurities of commercial manufacture, to the small quantity of cleavage products of abietic acid (colophtalin, colophtalium, colophen) and to rosin oil and turpentine remaining after distillation. However, the chief reason for the lowered melting point is in the colloidal water content of colophony. The abietic acid includes colloidally fixed water, so that repeated crystallization from dehydrating solvents, as glacial acetic acid or absolute alcohol, is necessary to remove the water. With this, the melting point gradually rises until the colloidal water is removed and pure abietic acid remains.

Abietic acid dissolved in chloroform with a drop of acetic anhydride and some concentrated H_2SO_4 gives a violet coloration. This color is often made use of for rosin detection.

Concerning the constitution[9] of abietic acid, little is known. It is shown most simply in a patent of P. Levy[10]. By this it is seen that by means of a double decomposition of colophony and sodium ethylate in alcohol solution, sodium abietate is produced and the purified product (soft, transparent, needle like clusters) is resolved in hydrous solution with an equivalent quantity of H_2SO_4. By this is obtained, not crystallizable abietic acid, but abietic acid containing colloidal water. This is similar to the main component of colophony itself, only this product, called by L. Paul[11] "*gamma* pinic acid," is white in color and in curdy condition. After melting, however, it has the color and glassy appearance of colophony.

The writer agrees with L. Paul's conception when he observes *gamma* pinic acid and abietic acid as the "corner stones" of a series of abietic acid-water dispersions, whereby *gamma* pinic acid has the maximum colloidal water and abietic acid has none. Further, it is correct when Paul regards colophony of commerce as fused *gamma* pinic acid with which it has a common melting point and other properties.

On the other hand, Paul's conclusions, that there are combinations of abietic acid with "colloidal water in stoichiometric quantities" and that the transition of *gamma* pinic acid to abietic acid occuring by steps over chemically definite intermediates will be shown as untenable by means of the following observations. Furthermore, the investigation shows that the transition proceeds continuously throughout, so that it is unnecessary to designate colophonic acid as a "new colloid type." This would be contrary to all previous knowledge of colloid stoichiometric combinations.

As an ordinary gel, for example gelatin jelly, *gamma* pinic acid is subject to syneresis, that is, it separates out a serum on long standing. If the separated *gamma* pinic acid preparation is preserved in a stoppered weighing bottle, the originally curd-like mass in time becomes more and more brittle and excludes water which gathers on the glass.

Also, the reverse process, a gradual solvation (swelling) is observed. If a rosin soap is precipitated with dilute H_2SO_4 at a high temperature, about 50 deg. cent., the loose curd-like *gamma* pinic acid is not obtained, as it is at lower temperatures. The precipitated rosin agglomerates much more to viscous masses, which draw and stretch out like plastic sulphur or bread-dough. But after a few minutes its white color gradually darkens to brownish and it becomes brittle and breakable, assuming a granulated pumiceous structure. It is noticeable that in this substance, after standing for a day in weekly acidified water, flocculant white appendages are formed from the brownish lumps, apparently a peptization phenomenon by which is formed a substance rich in water similar to *gamma* pinic acid. The granulated structure will again be formed if the test tube is heated in water.

Thus it is a question here of the colloidal change in state of the water retaining abietic acid, also observed in other gels, not a question of conversion to a chemically different material.

The phenomenon just discussed, that with relatively small increase in temperature, the colloidal water retaining abietic acid becomes brittle and crumbles, gives an explanation of poor sizing at high temperatures in the beater. In warm beater water, the disperse rosin takes on a physical property which in regard to its structure and solvation is unfavorable to a subsequent formation of a compact, unperforated crust.

5. Meta-stable Abietic Acid—Glacial Acetic Acid and Alcohol Sols.

By recrystallization of the abietic acid-colloidal water combination from absolute alcohol or glacial acetic acid, a phenomenon was observed, which, from the standpoint of colloidal chemistry appears worthy of mention. The boiling saturated mother liquid was filtered hot. Due to the slight cooling caused by the air, the clear highly dispersed solution reached the separation temperature, became opalescent, and passed through the filter paper as a colloidal solution. It had a milky turbidity which showed on the surface of the liquid, strange, moving motling effects similar to much twisted knots or fleeting shadow images. With gradual cooling the glacial acetic acid sol was clear in 24 hours. Meantime, oil drops of coagulated deliquescent abietic acid separated from the sol which, on further cooling became crystalline. The decrease in the degree of dispersion of the abietic acid could be followed from the molecular solution in glacial acetic acid over the intermediate emulsion colloidal stage by the separation and, further, over the coarse sedimentary emulsion to a solid. Condensation and coagulation were thus plainly observed. While such separation phenomena tend to complete the colloidal stage quickly as a result of lowering of the solubility, here the great temporary stability of the colloid separation stage is quite remarkable.

[8] P. Klemm: The Physical Processes in Sizing Paper, Wochenblatt fur Papier Fabrikantion, 1922, 89-96.
[9] B. H. Euler: Plant Chemistry, (1918) p. 141.
[10] D. R. P. 221, 889. (1910.)
[11] See L. Paul's treatise. Koll. Zeitschr. 1916, 1919.

6. Testing the Preparation for Purity.

As previously mentioned, pure sodium abietate was prepared from ordinary commercial colophony and from this pure abietic acid.

The purity of the crystallized sodium abietate was determined by three sodium sulphate determinations. 1/300 mol. $NaC_{20}H_{29}O_2$ = 1.0811 g. yielded, after incineration in a platinum crucible and evaporation with fuming H_2SO_4, 0.23kl g. and 0.2335 g. Na_2SO_4; the theoretical yield being 0.2350 g.

The purity of the abietic acid was determined by melting point, also by titration in alcoholic solution with n/10 alcoholic NaOH using phenolpthalein. 1/300 mol. $C_{20}H_{30}O_2$ — 1.0078 g. required 33.10 and 33.25 cc. NaOH. Theoretically 33.33 cc. are necessary. The difference in the amounts used is due to experimental error.

Two preparations in covered wide mouth bottles, which had been carefully dried, kept practically for an unlimited time without noticeable darkening by auto-oxidation. The auto-oxidation effects are shown in a short time by natural colophony (*gamma* pinic acid) and sodium rosin soap prepared from colophony with NaOH.

7. Preparation of Pure Rosin Size Solution.

Following Illig's discovery the rosin was used with its equivalent weight of alkali in hydrous solution so that a brown solution, alkali due to hydrolysis, flowed in on the paper fibers (*colle brune*). C. Wurster showed that from the experience of one manufacturer if less than the equivalent alkali was used, a more efficient and cheaper size solution was obtained (*colle blanche*). That is the rosin soap dispersed an excess of free rosin in "milky solution" as it disperses hydrocarbons and phenol in water in Creolin Pearson.

Accordingly, three different size solutions are needed for the investigation. These are designated as "a," "b," and "c" in the following sections.

a. Upper Limit.

Neutral (alkaline due to hydrolysis) sodium resinate soap (Illig's Paper Size) System: $NaC_{20}H_{29}O_2$ or $C_{20}H_{30}O_2$ + NaOH in different amounts of H_2O.

b. Lower Limit.

Alkaline free abietic acid hydrosol. System: $C_{20}H_{30}O_2$ in H_2O. This sol is not technically employed but is especially valuable in scientific investigation inasmuch as it contains the pure colloid phase of the following (c) size solution.

c. Size Milk (Wurster).

$C_{20}H_{30}O_2$, 1 equivalent NaOH in H_2O. At present the industry employs only such free rosin size solutions.

a. The sodium soap solution was standardized by weighing crystallized sodium abietate or abietic acid and adding the equivalent amount of n/2 NaOH. Solution in distilled water resulted after warming the flask on a water bath. When cooled to 15 deg. cent. the flask was filled to the mark. The sodium abietate solution allowed preparation up to a full 5 per cent; higher concentration separated out gelatinous rosin soap when cooled to room temperature. Concerning a further loss of solubility through aging, see further below.

b. The method of colloid preparation by means of lowering of solubility is adapted to the preparation of abietic acid hydrosol.

One per cent abietic acid in alcohol was dropped into distilled water with constant agitation of the water. This resulted in a milk white opalescent sol which was freed from alcohol by heating and from the flaky precipitate by filtration. To determine the concentration of the sol. 10 cc. was mixed with alcohol until clear and then titrated with alcoholic n/100 NaOH. The concentration could only be obtained to about 2 per cent without special precautionary measures. If the mixture was treated with air under pressure by means of water suction, a much greater part of the coarse rosin suspension came to the surface and the filtered sol had an abietic acid content of only about 1 per cent. The maximum concentration of 6.1 per cent was prepared by the following experimental procedure.

Boiled distilled water, cooled in ice was used as a dispersion medium for mixing, compressed air was used, after being freed from CO_2 by means of soda-lime tubes. CO_2 had a flocculating effect. After filtering, the sol was freed from alcohol at a temperature below 50 deg. cent. in vacuum. It was then concentrated as far as possible; until coarse flakes were visible on the glass. It was then filtered quickly and again cooled with ice.

Comparing an abietic acid hydrosol with *gamma* pinic acid, described above, it is found that P. von Weimarn's rule holds good. According to this rule, particles of colloidal size appear at extremely dilute and high concentrations. Indeed, in the case of *gamma* pinic acid, the rosin is considered as the dispersion medium, contrarily, in the case of abietic acid hydrosol, the water is the dispersion medium. But dispersion medium and disperse phase, are, in the end, relative ideas, especially in the case of dispersoids with the properties of solid bodies. In this respect, remember that colloidal ferric hydroxide can be obtained, at one time, in great dilution but at other times it is jellylike with only a few per cent of water[12].

Also Von Weimarn's theory of crystallinity, which without exception allows the colloid disperse phase crystalline properties seems to be confirmed with abietic acid hydrosol. In an aged greatly dilute sol, which is becoming flocculant, minute suspended crystals may be recognized with the naked eye, by their reflection when held in the light.

Technically, colloidal rosin has lately been prepared by the Plauson colloid mill[13]. On account of its brown color, it can find use in paper manufacturing only for sizing wrapping paper. Not long ago the writer worked out a process for using the Plauson mill in Professor Plauson's research institute. The international patents have been applied for and it appears suitable to replace the size cooking process now in use. Here the mechanical preparation of colloidal rosin is accomplished without any dispersor (peptizer) as alkali, and it may be used for pure white well sized paper. Together with Director Hartung of the Thadeschen Papierfabrik, Hainsberg (Saxony), the writer is busy with the technical investigation of this process.

c. The peptizing action of alkali can be followed quantitatively in the preparation of rosin size.

Analysis of the size milk was carried out in the following manner —the free rosin content was determined in 10 cc. of the milk as described in the case of abietic acid hydrosol. Then the total rosin was precipitated with dilute H_2SO_4 and taken up in ether in a separatory funnel, the water portion drawn off and again treated with ether; the combined ether extracts were washed with water separated and titrated with n/10 NaOH (alcoholic), using phenolpthalein as indicator. The difference between the total rosin and the free rosin gives the calculation of the rosin combined with alkali, or the existing alkali equivalent of the rosin.

If a trace of alkali (0.5 g. per liter) is added to the dispersion medium of a dispersion prepared with the above precautionary measures, almost three times as much colloidal free rosin will be obtained after concentration in vacuum, that is 1.68 per cent maximum. The milk had a total rosin content of 2.53 per cent, thus 66.4 per cent or about ¾ of the total rosin was present as free rosin.

The difference between the concentration of an alkali-free sol and the free rosin content of size milk becomes still greater if the alcohol in both is evaporated from an open vessel instead of in vacuum. Further on, an example will be given, with the same preparation of a sol and a size milk, the latter had taken up about 13 times the free rosin content of the sol concentration.

In order to study the peptizing action of the alkali independent from the dispersive action of the alcohol, it was attempted to reproduce the technical size cooking process in the laboratory.

[12] W. Ostwald: Outline of Colloid Chemistry, 7th Edition (1923).
[13] Chem. Ztg. 44, 976 (1920).

A weighed amount of abietic acid was fused with about twice the weight of water and a measured amount of NaOH was added by dropping from a burette into the fused mass. Saponification resulted with foaming and the fused mass formed a viscous, clear mass. This was cooled at 80 deg. cent., stirring constantly with a thermometer, and further diluted with distilled water at exactly the same temperature, adding it drop by drop. When the water used for dilution had a temperature other than 80 deg. cent. the fused size agglomerated, otherwise a fine suspension was formed, which was poured through a filter paper and could be brought to any desired concentration in the beaker beneath the filter. Since loss through spilling, in fusion, and saponification were not entirely avoided, it was necessary to undertake an exact analytical standardization.

The size milk emulsion prepared by fusion was found to be the same as that prepared with alcohol and lowering of solubility since it showed great stability on standing.

III. Dispersoid Analysis

The basic tests for evaluation of the degree of dispersion of an unknown dispersoid are, as shown in the general scheme of disperse systems, filtration and ultra filtration, dialysis and diffusion. Further explanation concerning the physical properties of the disperse phase are given by the methods of ultro-microscopy and electrophoresis.

8. Filtration and Ultra-filtration

All three size solutions pass through the ordinary filter paper and also through the especially fine pore filters, "Schneider and Schull No. 602, extra hard. Indeed, a part of the disperse phase, especially in the first drop of the filtrate, is retained by adsorption, so that the speed of filtration quickly diminishes as a result of narrowing of the pores of the filter. (After drying by waving over a flame, the paper is sized in some degree). This apparent filterability, however, allows no conclusions on the properties of the dispersion of the size solution, since it is well known that many typical molecular dispersions are retained by cellulose by adsorption. In the analysis of drinking water, for example, traces of iron, lead, etc., become concentrated and made detectable by soaking cotton wads in the water, the cotton storing up the salts[14].

Whether a division reaches molecular or only colloidal dimensions can be determined by ultrafiltration of the dispersoid. Ostwald's "ultra filtration thimbles" are very successful. These are seamless paper filter thimbles prepared by impregnation with 4 per cent collodium and standardized against impermeability of typical colloids with 0.01 per cent "night blue"[15].

(a) Clear and not too old sodium abietate solution 1 to 5 per cent concentration, ultra filter quantitatively, if the first cc. are disregarded, from which the cellulose of the filter adsorbs a part of the solute. With the stalagmo-metric method, later to be described, the full, constant sodium abietate content can again be found in the ultra filtrate and no residue remains on the ultra filter. Thus freshly prepared concentrated rosin-sodium soap solutions are molecular dispersions. The varying content of aged solutions is considered later.

If a sodium abietate solution is diluted below 1 per cent the further it is diluted, the quicker the bluish opalescence and slightly milky turbidity occurs. Such a solution leaves on the night blue dyed ultra filter a white residue of rosin acid holding colloidal water. The hydrolytically freed rosin acid from hydrous sodium abietate assumes colloidal dimensions with increasing dilution, that is, it condenses.

A. Haug[16] has measured the hydrolysis of sodium abietate by chemical and electrochemical means. He obtains the following curve (Fig. 1) for the free rosin content formed by hydrolysis on dilution. From this it is seen that, for example, in an approximately 2 per cent sodium abietate solution with about 0.025 g. NaOH per liter ¾ or more is split up into colloidal rosin acid and NaOH and that, with further dilution, this hydrolysis approaches 100 per cent. In agreement with this, the author found the following: When the ultrafiltrate of a diluted sodium abietate solution was evaporated in a wite porcelain dish, until the great dilusion was reduced to a volume of concentrated ultrafiltrate, of suitable size for the usual color reaction of rosin detection, the color reaction decreased with

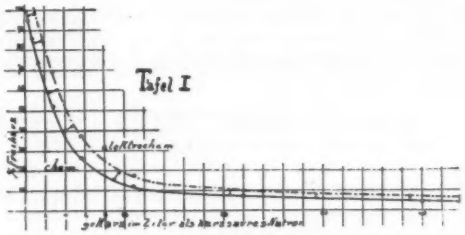


Fig. 1

increasing dilution and completely failed to work with the ultrafiltrate of a 0.01 per cent rosin soap solution. This is a sign that in the case of this dilution, the OH ions present in the solution are no longer able to hold the rosin acid in ionic dispersion, that is, the molecular disperse condition; that not only hydrolysis but also the condensation of the hydrolytically formed rosin is complete.

Thus these traces of alkali suffice to divide the colloidal rosin phase, if not to the molecular condition, at least to a fine colloidal state. If 10 cc. abietic acid hydrosol is mixed with 10 cc. of distilled water then with 10 cc. n/1000 NaOH, even such dilute alkali serves to clear up the opalescence to the colorlessness of water.

(b) Abietic acid hydrosol does not pass through the ultra filter as such but is separated quantitatively into rosin and water. Its disperse phase is colloidal, since it passes through an ordinary filter but not through the ultra filter.

(c) Size milk leaves a residue on the ultra filter at the same time there is a considerable rosin content in the ultra filtrate. The more dilute the size milk used in the ultrafiltration, the smaller is the proportion of rosin which passes through the ultra filter.

9. Dialysis and Diffusion

A paper extraction thimble serves very well as an analytical dialysor. This must first be prepared by Oswald's method of impregnation with collodium and tested with 0.01 (approx.) night blue against impenetrability of typical colloids. Likewise, parchment paper will serve as a dialysis membrane after standardization with night blue.

(a) If clear rosin soap solution is dialyzed against distilled water, after a few hours sodium abietate may be detected in the water by means of acid precipitation and the color reaction, as confirmation of the findings by ultra filtration.

In the same way, the observations made with the ultra filter on diluted solutions are confirmed.

(b) Abietic acid hydrosol does not diffuse after a week in the dialysor, proving by this and the ultra filtration that it is colloidal.

(c) Size milk dialyses in part. After repeated changes of the outside water, the dispersion largely flocculates out since the dispersing agent (NaOH) is removed.

Investigation of diffusion was carried out against 2.5 to 3 per cent gelatin jellies which had set in half-filled test tubes.

(a) Sodium abietate showed an unmistakable diffusion by a whitish cloudiness of the gelatin. Since gelatin contains lime, and since calcium abietate is formed by soluble lime salts, the white turbidity is regarded as such. The calcium abietate precipitate within the jelly does not disturb the progress of diffusion; but when spe-

[14] C. G. Schwalbe: The Chemistry of Cellulose, 79. (Berlin 1918.)
[15] W. Oswald: Methods of Colloid Chemistry (Dresden, 1921), 24.
[16] A. Haug: Degree of Dissociation and Unsaponifiable Matter in Rosin Size, Wochenblatt fur Papier Fabrikantion, 1923, 26.

cial precipitating salts are added to the jelly, precipitation may be used as an index of the extent of diffusion. As a means of differentiation, time requirements with other solutions and jellies may be taken. A room temperature, sodium abietate gave a velocity of diffusion of about 0.25 to 0.30 cm. per day. For comparison it has been found[17] 1.04 cm. for NaCl, 0.81 cm. for urea, 0.31 cm. for raw sugar, 0.27 for a highly dispersed gold sol and 0.06 cm. for albumin. Thus the degree of dispersion of freshly prepared sodium rosin soap solution compares with that of raw sugar; it lies near the accepted boundary (1 mu mu.) between colloidal and molecular dispersions.

(b) Abietic acid hydrosol does not diffuse in gelatin jelly.

(c) From size milk, as would be expected, only the portion present as sodium abietate diffuses.

10. Ultra-microscopy

Even with the greatest magnification a common microscope permits us no insight into the three size solutions under investigation, a sign that no coarsely dispersed phase occurs. Such a phase is produced in abietic acid sol and size milk if coagulating salts were added. Then, under an ordinary microscope the particles of rosin can be recognized as tiny points which whirl about in active, individual motion, like a swarm of gnats. This phenomenon has the somewhat presumptuous name of "Brownian molecular movement" while the particles under observation are at least a thousand times as large as molecules.

But it is possible to make colloidal particles visible, of course, only as points of light under renunciation on geometrical models. For this, the ultra microscope is used. Practically, an ultra microscope is composed of an electric arc and a system of lenses, by means of which an intensive beam of light is thrown on the material. To observe the material, a compound microscope, regulated to observe a dark field, is used. Since according to definition, the colloidal particles are smaller than the wave length of the light, they are no longer to be resolved geometrically for optical reasons. However, with the ultra microscope arrangement described they are to be recognized as glistening points of light, like dust in the air of a room, when a sunbeam falls into the dark room through a narrow opening.

(a) Under the "slit" ultra microscope (Siedentopf and Zsigmondy) clear concentrated rosin soap solution shows, excepting occasional flashings from optical dirt, a dark field; as would be expected from its conduct in the case of dialysis, diffusion, and ultrafiltration, for even the ultra microscope will not resolve the components of a molecular dispersion. Contrarily, the Brownian movement could be seen in a diluted solution after being cleared up by diffusion.

(b) Abietic acid hydrosol presents the same picture and resembles the many thousand of ultra microscopic investigations on mastic which is considered as a typical suspensoid colloid, contrary to the emulsoid colloid.

(c) Size milk is the same. This conclusion makes it appear doubtful if the colloid chemist may speak of size milk as an emulsion as the paper manufacturer often does. For the emulsion sol does not show the Brownian movement or, in any case, only indistinctly. This has its reason in that by the taking up of particles of the dispersion medium on the disperse phase (solvation), the difference in the optical constants of the disperse phase and the dispersion medium gradually disappears as if the disperse portion is solid and also covered by solids. Also the fact from Section 7b, that abietic acid hydrosols prepared only in very low concentration allow conjecture of a suspensoid character of the disperse phase. Final enlightenment concerning the degree of solvation of an abietic acid hydrosol requires viscosity measurements and comparative researches on flocculation in abietic acid hydrosol and mastic sols which are described below.

11. Electrophoresis

A U-tube (J. Billitzer) with capillary contractions in the middle of both side arms was used for electrophoresis. The solution under investigation was poured through a small funnel into the capillaries until it filled up the lower part of the tube and stood in the contractions of the arms and above the upper openings of the capillaries. Then the left capillary opening was closed by a glass rod covered on the end with a piece of rubber and the upper region of the arms filled with distilled water (the left slightly higher) then the glass rod was cautiously removed. After corking in the platinum electrodes a potential of 250 volts was applied.

(a) Sodium abietate solution after an hour in the apparatus showed a white flocculation on the anode coupled with the evolution of gas at both electrodes. The material separated out was insoluble in water and gave the color reaction of abietic acid. Dissolved in alcohol and treated with phenophthalein, it required a considerable amount of n/100 alcoholic NaOH to produce a red color. The process at the voltage applied is explained by the following equation:

$$\underset{\text{abietic acid anion}}{\text{Anode: } 2\ C_{20}H_{29}O_2} + H_2O\ 2^{(1)} \longrightarrow \underset{\text{abietic acid}}{2\ C_{20}H_{30}O_2}\downarrow + O\uparrow$$

$$\text{Cathode: } 2Na + 2H_2O + 2^{(1)} \longrightarrow 2NaOH + H_2\uparrow$$

Apparently colloidal reactions have no part here. It is the type of a normal electrolysis. The current soon ceases since the anode becomes covered with isolated abietic acid.

(b) Abietic acid hydrosol migrates continuously to the anode, while the cathode is cleared up so that finally a clear water zone stands above the white milk. By this it shows that it is the type of pure cataphoresis and proves to be negatively charged, analogous to a mastic sol, as one is accustomed to consider the material in the case of rosin and static electricity.

Later another abietic acid hydrosol was subjected to electrophoresis which was prepared not by lowering of the solubility, but by means of an exhausting dialysis a dilute rosin milk. This sol also was negatively charged.

For confirmation, the Fichter-Sahlbom capillary-electric method was employed. If an abietic acid hydrosol is negatively charged, it must rise in a filter paper likewise negatively charged, without flocculation with its dispersion medium, essentially it may not remain back behind the water. Since the capillary rise of the sol is not directly visible in the filter paper on account of its white color the following procedure must be used. A square piece of filter paper (about 15 cm. edge) was hung perpendicularly in a crystallizing dish which had been filled to a depth of 1 cm. with abietic acid hydrosol. Within 10 minutes the liquid rose 11.5 cm. in the paper. The paper was then dried by moving it above a flame. It was then cut in horizontal strips of 2 cm. wide. Each strip was then rolled up, placed in a test tube, and extracted under a reflux condenser with $CHCl_3$. Then acetic anhydride and sulphuric acid was added to the chloroform extract. The violet color was still plainly visible in the strips 8 to 10 cm. from the lowest, only the last strip 10 to 11.5 cm. did not show the reaction. Since other negative colloids remained behind somewhat, in the case of a high rise, and positive colloids, contrarily flocculated shortly over the water level, these findings confirmed the results of catophoresis.

(c) Size milk, when electrophoresis was tried on it, acted like a mixture of sodium abietate and abietic acid hydrosol. Electrolysis and catophoresis apply together. This was to be expected. In the cathode arm, clearing up was perceptible, just as much as the electrolytically raised concentration of NaOH acted on the migrating colloidal, rosin particles. In the bend of the U-tube the opalescent anode liquid formed a sharp meniscus against the clear cathode liquid. With the Fichter-Sahlbom method, the rosin showed a rise to about 8 cm. Water rose to 10 cm.

Summarized as common results of the elementary colloid analytical methods employed, it may be said that newly prepared sodium rosin soap solution is molecularly dispersed even if according to the slowness of this diffusion it nears the colloidal condition. To the contrary, the so-called free rosin is a typical colloid, not greatly salvated and carrying a negative electrical charge.

(To be continued)

[17] W. Ostwald: Outline of Colloid Chemistry, p. 267.

Section of the

COST ASSOCIATION OF THE PAPER INDUSTRY

Affiliated with

THE AMERICAN PAPER AND PULP ASSOCIATION

Conducted by THOS. J. BURKE, C.A., Sec-Treas

ACCURATE ACCOUNTING--WHAT IT MEANS TO THE PULP AND PAPER INDUSTRY*

By James A. Reilly

Accounting has been called an accurate science. Accountants who do not do accurate work are apt to do more harm than good to their employers. In fact, the need for accuracy, particularly in connection with cost work, cannot be too strongly emphasized.

During my experience in cost work in the pulp and paper industry, I have time and time again had brought to my attention cases where cost figures had been compiled in an inaccurate manner, with the result that the deductions drawn from these figures by the executive to whom they were given, were absolutely misleading.

A Difficult Problem

The Cost Association, as we all recognize, has a very difficult problem on its hands, because of the many different varieties of products produced in the industry. Only one group in the industry has made advanced progress toward uniformity, although I am glad to be able to state that the other groups are making definite progress in that direction. The group I refer to is the News Print Group. The Cost Association is the only association devoting itself to the improvement of accounting methods in groups, other than the News Print Group. These are listed alphabetically, as follows:

1—Boards.
2—Book.
3—Bristols.
4—Building.
5—Cover.
6—Specialties (Blotting, etc.)
7—Tissue.
8—Wrapping.
9—Writing.

The Writing Group may be sub-divided into the rag content and sulphite bond groups.

It is obvious that the arranging for special group meetings for each of these groups is a very big piece of work, and requires lots of time and money.

Budget Cost System

You no doubt recollect that the Cost Association has published an outline of what we called "A Budget Cost System for Paper Mills," in which we have outlined the fundamentals of a cost system. We believe that all pulp and paper manufacturers should base their accounting work on these fundamentals, which are as follows:

1—Dual Purpose.—Which means that a paper mill cost system should not only be used for operating and accounting purposes, but for the calculation of selling price estimates also.
2—Double Entry Control.—Which means that all records should be controlled through double entry accounts, which should preferably form an integral part of the general accounting system.
3—Unit Cost.—All products should be costed in units, differentiating grades, sizes, weights and colors.
4—Direct Charging of Material.—All fibrous material entering into the production of paper, and all other materials used directly in manufacturing such as filler, size, color, bleach, etc., should be charged direct to production.
5—Departmentalization.—The plant should be divided for accounting purposes, into departments, and the operating cost of each department compiled separately.
6—Normal Cost Through Budget System.—This means that seasonal variations in cost should be allowed for when compiling cost figures.
7—Departmental Rate Method.—The departmental cost should be charged to the product, at an inclusive departmental rate, developed wherever possible on the hourly basis.

Those of you who have taken the trouble to read the above named publication will know that these seven fundamentals are further explained there.

Can Be Applied to All Groups

Except for those mills which make very few changes on their machines, these fundamentals apply to practically all groups I have previously mentioned. We believe, in the Cost Association, that these fundamentals can be applied in all other groups in the industry. The differences in the accounting methods used by mills making book and writing papers, for instance, should be very slight, and be caused only by the differences in operation. The fundamentals are the same in all groups. All mills must have land, buildings, machinery and equipment, and use labor and raw materials. The accounting methods used therefore, up to a point, should be the same. I want to stress this point, because there is a great deal the Cost Association can do for all mills outside the News Print Group making a variety of products, without there being any

*Address before Eleventh Semi-Annual Convention held by Cost Association of the Paper Industry at the Lawrence Hotel, Erie, Pa., May 19th, 20th, 21st, 1924.

necessity for calling upon the accountants in any particular group to consider special action for their group.

Fixed Assets

One of the most important factors in accounting in our industry are our "fixed assets." As you all know, our industry is one in which heavy investment has to be made by a manufacturer, before he can make a pound of paper. It is all the more important, therefore, that our "fixed assets" should be properly set up in our books, so that we may know at all times just where our heavy investment is, and what its present worth is at any time. The following speaker will go into this in detail, and as he represents a company which I am told has made appraisals for between two or three hundred pulp and paper mills throughout the United States, I believe that what he has to say in connection with the "fixed assets" owned by pulp and paper mills, should be well worth our attention, and will, I hope, give us a good insight into the methods which his company has used so successfully in their work.

The Cost Association does not lend itself to the pushing of any one organization in the industry. We are supported by manufacturers, and are working entirely for their benefit, realizing our responsibility to them. When we find a concern, however, that is doing really sound work for the industry, even although some may think that their charges are somewhat severe for this work, still we believe that we are acting in the interests of pulp and paper manufacturers, when we give this company an opportunity to send a representative to tell us something of their methods and their plans.

"Fixed assets" should be controlled through a Plant Ledger, so that we may know at all times the condition of our large investment. Another point to be remembered, is that unless these "fixed assets" are properly segregated, it is a difficult matter to cost our products accurately, and as I have said before, accounting is an accurate science.

Current Assets

Another important point about the manufacture of pulp and paper, is, that our "current assets" very often assume large proportions, owing to the necessity for purchasing large quantities of raw materials at certain times of the year, in order that the manufacturing operations may be carried on continuously throughout the year. I do not propose now to go into the matter of how such purchases should be made. That really is outside our province. I mention this point only, because I want to consider it from the accounting standpoint, which is, how far it is advisable to invest funds in large stocks of raw materials, taking into consideration the general financial condition of the mill.

You will note that one of the speakers tomorrow is Alexander Wall, and his speech will be, "What Comparative Statements Mean to Industries." This is the third time Mr. Wall has addressed our association, and I hope it will not be the last. His association, the Robert Morris Associates, is doing wonderful work for industries, and we intend to go on asking him to address us, so that we may keep in the closest possible touch with their work. This work is the collecting of information which is really vital to any industry, and it is information which in many industries it is impossible to get, the reason apparently being, that it is to some extent confidential, and therefore executives are loathe to give it out. The fact remains that if the Cost Association can get this information, it can in return give back to those executives who co-operate, information regarding their industry that we know many of them would like to have.

In a previous address on "Financial Statements," Mr. Wall mentioned for instance, several ratios which we wish to develop for the industry in general, as well as for each particular group, these were as follows:

1—Merchandise to receivables.
2—Net worth to fixed or non-current assets.
3—Sales to receivables.
4—Sales to merchandise.
5—Sales to net worth.
6—Net worth to total debt (both current and funded).
7—Sales to fixed assets.

In his address Mr. Wall very clearly set forth the advantages of having information of this kind tabulated for industries, and showed us charts illustrative of what the rubber industry had been able to do along these lines.

While I am on the subject of "Current Assets," I would like to mention the talk that Mr. Farrington is to give about "*Purchase Discounts.*" This subject I hope you will discuss after hearing what Mr. Farrington has to say regarding it, as fully as possible, as one of our members has requested particularly that we should discuss it from the point of view of the relation of "Purchase Discounts" to raw and finished inventory and working capital. The point is, whether it pays to borrow money at 6 per cent, to take advantage of a discount of 1/10 or 2/10 offered you.

While I am on the subject of "Current Assets" also, I might discuss "Budgets," their construction and use. The subject on which George E. Frazer of Chicago, is to speak tomorrow.

The making of a "Budget" involves careful estimating, and here again the necessity for accuracy is paramount. Estimates as accurate as possible must be made of sales of the raw materials, which it will be necessary to purchase to make the products for these sales; of the amounts of money necessary to meet the labor payrolls periodically; of the amounts necessary for improvements, replacements, and other expenditures incidental to the manufacture of our products.

I presume that, comparatively speaking, but a small percentage of pulp and paper manufacturers in this country make any serious attempt to prepare a "Budget," either yearly or semi-yearly, of their future operations and the manner in which these will be financed. I do not mean to say by this, that they run along in a haphazard manner, but that I believe there is very big room for improvement in the "Budget" methods, if they can be so called, now generally used throughout the industry. In this connection I may say, that there can be no doubt, as has already been proved by our government, that the making of a "Budget" has a very beneficial effect upon costs and expenditures in general. More responsibility is placed upon junior executives, and their sporting instinct is aroused in their efforts to live within their quota, or in the case of the Sales Department, to make up their quota. We shall, therefore, I am sure, listen to what Mr. Frazer has to say on this important subject with the very greatest interest.

I have had the pleasure of hearing Mr. Frazer speak at a convention held by the National Association of Cost Accountants, and can assure you that he delivered one of the best addresses I heard at that convention.

Deferred Assets

Those of you who have had anything to do with insurance policies carried by your respective concerns have no doubt met with considerable difficulty from time to time, in dealing with these policies. Perhaps the only time when we bother a great deal with them, is either when we have suffered a loss of some kind, for which a claim is to be made, or at the end of an accounting period, when we have to estimate the value of the unexpired term of the policies. When there is a large number of these, the compilation of these figures takes some time.

You know the Cost Association is endeavoring in every way at this time to assist executives to reduce costs, the insurance cost item has assumed large proportions in late years; workmen's compensation and other laws have been passed making it compulsory for large employers of labor to insure against sickness and accident to their employees. In addition to the increased cost, the subject has become complicated, making it difficult for anybody but an expert to select the policies giving the best coverage at the lowest figure.

It is a most important matter to us, because being a wood using and rag using industry, both of which are highly inflammable materials, the risk of loss through fire hazards is great, and the loss can easily be severe. It is absolutely necessary, therefore, that all mills should be adequately protected. The Cost Association wants them to be also protected against paying unnecessarily high premiums for this protection against fire and other hazards.

We believe that Fred S. Smith, of Boston, whom we have asked to make an address on this question of saving money in insurance, will be able to tell us a number of very interesting things in connection with it. He has already addressed the Connecticut Valley Local Division, and made such a good impression there, that we thought it would be a good thing to get him to address one of our conventions, as this is certainly one way in which many mills can save large sums annually.

Liabilities

I am not going to say a great deal about our liabilities. Those we have always with us. One thing about them I might reiterate is, that in the "Ratios which I have previously mentioned, which we wish to develop for the industry in general, are several relating to liabilities which would give us a splendid idea of the relation these should bear to our assets, and this seems to be the most important point that we can mention in connection with them. Too many pulp and paper mills in the past have had to go into the receivers' hands because of their "frozen assets". In other words, because they could not liquidate fast enough in order to meet their liability. There is, however, another kind of liability about which I would like to speak, and that is the liability that we accountants have to the superintendents as well as our executives.

I am very glad that Nelson R. Davis, the president of the American Pulp and Paper Mill Superintendents' Association, has kindly agreed to stop off at Erie on his way to the Superintendents' Convention at Dayton, and say a few words to us about "The Value of Cost Statistics to Superintendents."

You will remember that I spoke of the dual purpose of a cost system, the first of which was that cost records are needed both for operating and accounting purposes. The statements compiled from the cost records for operating purposes, should be of great value to superintendents if compiled in the right manner. I hope Mr. Davis will help us to understand a little better than perhaps some of us do, just how superintendents would like such statements prepared. In this connection I might mention that I personally have had some interesting experiences lately, in connection with one of our mills, where at the request of our president, I have been making a few investigations.

(Mr. Reilly then detailed a number of cases in which savings had been affected as a direct result of information developed through cost reports).

No doubt many of these savings would have been previously put into effect, had the cost statements sent to the superintendent been so compiled, that his attention had been directed toward the necessity for further investigation into certain features of the manufacturing operations.

This feature of cost work is most important, particularly at this time, and I believe will become increasingly important during the next few years, which we are told will probably be years of close competition; so that those mills which can reduce their costs and manufacture efficiently, will have a big advantage over those which are operating more or less in the dark.

I have spoken above of our liability to our executives. We have a gentleman to talk to us on "The Kind of Cost Figures the President Wants." Hugo Diemer, of La Salle Extension University. If Mr. Diemer can explain clearly and explicitly the subject of his address, he will, I know, prove a big success with all of us.

What are the kind of cost figures that *your* president wants—that *my* president wants—that *his* president wants? I have worked under different presidents, and can assure you that what is one president's "meat", is another president's "poison." In other words, what one man wants, another man does not want at all. In fact I heard a president of one big company, not so very many hundreds of miles away from here, state that all he wanted to know was, what his balance was last night, what his sales were the day before, and how much paper had been made. The peculiar thing about it is, that this president has been uniformly successful. However I have heard recently that he has somewhat changed his ideas about cost matters, and is now recognizing the necessity for doing a great deal more along cost lines than he has previously done.

There are two speakers on the program whom I have not mentioned, namely, Commissioner Nelson B. Gaskill, of the Federal Trade Commission, whose subject will be "Selling Below Cost," and our old friend, Ex-President Seth L. Bush, who will speak on "Labor Losses and How They Can Be Cut."

Mr. Gaskill is well known, and is an authority on his subject. Unfortunately we have received a telegram advising us that owing to unforeseen complications it will be impossible for him to address us.

Mr. Bush, I can assure you, is an authority on his subject. Volumes have been written on the losses incurred by large employers of labor, through the large turn-over, that is to say, the number of men who are employed and then leave after a short period of work. I believe that Mr. Bush will be able to tell us a few things on this subject, which will illustrate the methods which can be used, to overcome these losses. He has always been a very welcome addition to our speakers, and as we all know, has been one of the main forces behind the constructive work done by the Cost Association.

Conclusion

Perhaps some of you may think that I have strayed somewhat from my subject, namely "Accurate Accounting and What It Means to Our Industry," but in going through our program as I have, my object has been to show you that in arranging this program we have had an eye to but one purpose, namely, the desire to assist each and every one of you, to get at the truth, regarding the financial facts of the manufacturing operations being carried on in your respective mills.

Everyone of our speakers has been chosen with this purpose in view, namely to assist accurate accounting and the reduction of costs, for the purpose of increasing profits or cutting down losses.

Before finally closing, I want to say, that it is our desire to act in an advisory capacity to all pulp and paper mills desiring to obtain this help, both as regards tax, as well as accounting problems.

You have probably read something of the tax work we have been doing, particularly in connection with the "Special Relief" sections of the Federal Tax Acts. It is a little early at present to speak of results, because these tax claims take a considerable period before any definite decision is made by the Tax Bureau. I may mention, however, that claims totaling almost a million dollars have been made, as a direct result of this work. Up to the present, one only of these claims has been dealt with, and I am glad to say that in that case, without any conference whatsoever, the bureau offered to reduce (an extra assessment which they had made), by approximately $4,000. This offer has been refused, and an appeal made to the committee, but it represents a hundred per cent return to the mill on the cost of the brief, prepared by J. Austin Smith, who was briefed in the case, by our member.

We hope to have a more comprehensive report to make on this work at our next convention.

Buffalo Forge Co. Opens Western Office

The Buffalo Forge Company, paper mill machinery supplies, of Buffalo, N. Y., announces the opening on June 1 of a new western office at Seattle, Wash. The territory of this office will include the states of Oregon, Idaho and Montana, in addition to that of Washington and the Territory of Alaska. Arthur T. Forsyth, of the Buffalo plant, will be western representative in charge.

COST SECTION

SECRETARY-TREASURER'S REPORT*

A suggestion has been made that the Association should revise its Constitution and By-Laws, with a view to putting the Association on a better basis, for the carrying on of its work in the industry, in the light of the experience gained since its formation. On this account, I am distributing copies of the Constitution and By-Laws for your consideration. Further copies are being mailed to members not represented at this Convention, with the request that they will make any suggestions regarding changes which they think might be made, so that a notice regarding these changes can be sent out to all members, three weeks before our next meeting, when action can be taken thereon.

Conventions

I have a suggestion to make regarding conventions. In spite of the fact that these have been widely published throughout the industry, the attendance has not been as large as it might be, and I know that in a number of cases accountants would be only too glad to be able to attend, providing their mills were willing to pay their expenses, but that they have been unable to arrange this.

I feel that perhaps we should do more good if we held District Meetings in the various paper making centers, at regular periods, so that the distance which accountants would have to travel would be considerably lessened. In other words, instead of spending money in getting speakers to come to one place, we should spend this money in traveling expenses for myself and the president, to make trips periodically to the different centers, and there meet with members, and explain to them what we are trying to do, and get their help and suggestions as to how the work could best be done. It is my belief that we should in this way keep in closer touch with our members, and make quicker progress. I say progress, because gentlemen, there can be not the slightest doubt that we have made remarkably good progress during the past six months.

Financial Report

It is with great pleasure that I report that the Association is now practically out of debt. This has been accomplished through a direct appeal made by our Executive Committee and the generosity of the following members: American Writing Paper Company; Beckett Paper Company; L. L. Brown Paper Company; Chemical Paper Manufacturing Company; Z. & W. M. Crane; Crocker-McElwain Company; Carew Manufacturing Company; C. H. Dexter & Sons, Inc.; Eastern Manufacturing Company; Esleeck Manufacturing Company; Hammermill Paper Company; Hampshire Paper Company; Knowlton Brothers, Inc.; Kalamazoo Vegetable Parchment Company; Nekoosa-Edwards Paper Company; Stevens & Thompson Paper Company; Strathmore Paper Company; S. D. Warren Company; Whiting-Plover Paper Company. These are the companies who have contributed to date. It is possible that other amounts will be received later, as a result of our appeal for extra funds.

The result has been that the Association has been able to carry on without discounting a note at the bank, as has been its practice, every six months, for several years past. We shall, therefore, on July 1st next, when we send out our invoices for dues, be in a position to use all money received for our expenses, and start with a clean sheet, and perhaps with a small surplus. This will enable us I am sure, to do more effective work, as there is nothing so hard to carry on as an association which is always more or less in debt. It detracts from the efficiency of its officers, because they have to spend a certain amount of time in devising ways and means of overcoming their financial shortcomings.

I wish to express my appreciation particularly to those mills, who have subscribed, as well as to the members of the Executive Committee, (Col. B. A. Franklin, President Reilly and Seth L. Bush), who signed the letters which went out on behalf of this appeal.

Tax Work

You will remember last fall, during the Chicago Conference, the Association first drew attention to the possibility of mills making claims for tax refunds, and introduced at that conference, a speaker on this subject, viz., J. Austin Smith.

I will not take you through the details of the work we have been doing since that time. Suffice it to say, that three charts have been drawn up from information tabulated from replies received to a questionnaire sent out on this subject. The last chart contained (61) mills, and has been distributed not only to our members, but to outside mills which have contributed information used in this chart.

As a direct result of this work we have obtained seven new members, and expect others in the near future. We have been complimented very sincerely on this work, and I think rightly, because it is information which is of supreme importance to any mills making claims under the "Special Relief" provisions, and cannot be obtained elsewhere.

To date, only one of these cases has been dealt with by the bureau, although claims totalling almost a million dollars have been filed, that is, speaking of the claims which I have come in direct contact with, and which have been handled by Mr. Smith. There are others which have been made as a result of this work, regarding which I have not any definite information, except that they are being handled by local accountants.

To date only one case has been heard from in Washington, and Mr. Smith has advised me that in this case the bureau has offered to reduce by over $4,000 an extra assessment which they had made for the year 1918. As this offer has been made as a result of the brief only and without any conference, it will be refused and an appeal made to the committee when it is hoped that a further reduction will be made.

This is a very satisfactory start, and I only hope that the amount will be increased, also that in all the other cases full use will be made of the information obtained, so that satisfactory settlements can be obtained.

Many of you doubtless are aware of the provisions under which these claims for refund are filed, but for those of you who do not know, I might say, that the Special Assessment Section never operates to increase taxes, that is to say, if they are not satisfied that you are entitled to "Relief," they will simply refuse your claim for refund. They will not attempt in any way to have your case re-opened, and an extra assessment made on you. They use the figures given them by the other sections, and do not attempt to dig into the cases, except those fundamental things which might be mentioned, in order to substantiate the claims for refund.

* Presented at Eleventh Semi-Annual Convention held by Cost Association of the Paper Industry at Lawrence Hotel, Erie, Pa., May 19th, 20th, 21st, 1924.

Pulpwood Imports Into United Kingdom Decrease

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., May 28, 1924.—Aggregate imports of pulpwood into the United Kingdom during the first three months of 1924 record a decrease of nearly 18 per cent, contrasted with the same period in last year, the total falling to 158,054 tons (of 2,240 pounds) against 192,306 tons, says a report to the Paper Division of the Department of Commerce from the American Consul at London. The report continues;

"The downward tendency was manifest in all descriptions, but the heaviest decrease occurred in wet mechanical pulpwood, which fell to 88,490 tons compared with 108,820 tons, while the aggregate of chemical pulpwood declined to 67,338 tons from 81,119 tons, the fall being concentrated in the unbleached dry description, of which 61,353 against 73,892 tons were imported."

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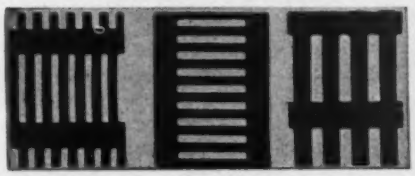

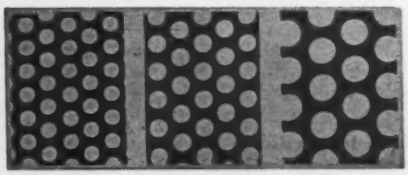

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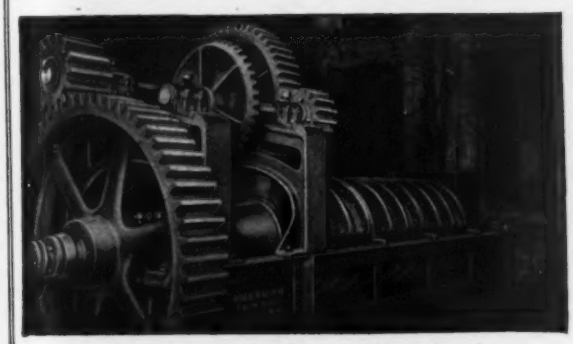

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Obituary

Louis H. Buckley

WORCESTER, Mass., June 2, 1924.—Louis H. Buckley, vice president and assistant general manager of the United States Envelope Company, died suddenly at the wheel of his automobile while driving to his home, 74 Nelson place, last Monday night. His death was due to cerebral hemorrhage and shock.

Mr. Buckley was 58 years old and was one of the most widely known citizens of Worcester through his prominence in its industrial, civic, financial and social life. He was also president of the Worcester Gas Light Company and was identified with many other of the city's enterprises. He was a native of Worcester and had lived here all his life. His prominence, however, had not been confined entirely to his native city. His patriotic work during the World War, when he served as federal food administrator for Worcester

LOUIS H. BUCKLEY

county and his interest in Farm Bureau and Extension Service activities, gave him wider fame. His leadership in the counsels of the Republican party had for years given him wide acquaintance throughout the state. Public recognition in politics, however, he had always avoided.

His business activities, which necessitated supervision of the envelope plants throughout the country, added to the number of his business acquaintances in many business centers.

Mr. Buckley was educated in the schools of Worcester and graduated in 1883 from the Classical High School. He then took a course at a business college after which he entered the employ of the Richardson Manufacturing Company. Three year later he entered the employ of the envelope company which was destined to be the center of his life's activities. Promotion was rapid and in 1910 he became assistant general manager of the company, sometime later being elected vice president.

The deceased is survived by his widow, who was Miss Vesta L. Whitcomb of Hallowell, Me., a son, James, who is connected with the United States Envelope Company; and a daughter, Mrs. Emily Kilgore of Orlando, Fla.

The funeral was held last Thursday.

Moritz C. Peixotto

On Friday, May 23, Moritz C. Peixotto passed away at his home at 327 Central Park West, after a very short illness. He was perhaps one of the best known salesmen in the paper trade, having been connected with the Maurice O'Meara Company for the past 38 years.

Mr. Peixotto was born in Kingston, Jamaica, December 10, 1855, and after spending his early boyhood in Jamaica, came to New York, where he shortly became connected with the Maurice O'Meara Company as a salesman. He became very well known as manager of the Carbon and Tissue Department of the company.

Because of ill health within the past few months, he was forced to retire from active business. His death had come as a shock to his many friends, due to the fact that the day previous he had felt much better, and had been able to be up and around.

The funeral services were held at Campbell's Funeral Parlor, on Tuesday, and were attended by many of his friends, in the paper business, besides the entire selling force of the Maurice O'Meara Company.

Besides his widow, three sons and two daughters survive him. The interment was at the Greenwood Cemetery.

John F. Wall

BOSTON, Mass., June 2, 1924.—John F. Wall, a former well-known resident of Norfolk, died May 27 at his home 237 La Grange street, West Roxbury. Mr. Wall bought the Highland Lake Paper Mill in Norfolk in 1895 and was one of the best-known manufacturers of sheathing paper in New England. He operated the Baltimore mill at Millis and the Bush mill in Norfolk for several years. He retired from active business in 1920.

Mr. Wall was active in politics and at one time was a candidate for representative. He served several years as selectman of Norfolk and later as selectman of Walpole. He was a member of Reliance Lodge of Odd Fellows of Walpole, and a charter member of the lodge of Masons in Norwood, and the Red Men. He is survived by his wife, a son, Ayanna Wall; and one daughter, Miss Kitty Wall, who lived with him.

Edwin Richard Redhead

SYRACUSE, N. Y., May 31, 1924.—Edwin Richard Redhead of Fulton, president of The Victoria Paper Mills Company, paper manufacturer, banker and trustee of Syracuse University, died here yesterday shortly after returning from Springfield, Mass., where, as a lay delegate, he attended the sessions of the General Conference of the Methodist Episcopal Church. Mr. Redhead had been in poor health for some time. He was born at Brownville, N. Y., January 6, 1851.

Samuel E. Giles

KANSAS CITY, Mo., May 31, 1924.—Samuel E. Giles, Kansas City manager of the Continental Paper and Bag Mills Corporation, died unexpectedly May 6 of acute indigestion. Mr. Giles had represented the Continental Mills in Kansas City for ten years. Since July, 1923, he had been manager of the local branch of the company. He lived at 4264 Jefferson street, and is survived by his wife, Mrs. Alice M. Giles, and son, Samuel E. Giles, Jr.

D. E. Scott Goes With Bemis Bro. Bag Co.

CHAGRIN FALLS, Ohio, June 2, 1924.—Douglas E. Scott, who for the past year has been connected with the Bemis Brother Bag Company, of Peoria, Ill., has become general superintendent of the mill of Adams Bag Company here.

Mr. Scott has had a wide experience, having been for ten or twelve years with Arthur D. Little, Cambridge, and later was associated with the United Fruit Company in its experimental work connected with the by-products of sugar manufacture. He was then for a time with Bird & Son, Inc., East Walpole, Mass., and about a year ago made a connection with Bemis Brother Bag Company.

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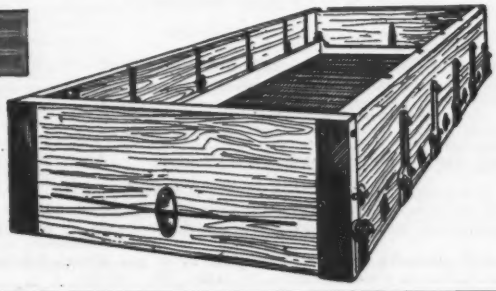

Imports and Exports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING MAY 31, 1924

SUMMARY

News print .....1,951 rolls
Printing paper..139 cs., 317 rolls, 122 bls., 223 pgs.
Wall paper.....547 bls., 10 cs.
Wrapping paper.....1,418 rolls, 454 bls.
Cigarette paper .....19 cs.
Writing paper .....19 cs.
Paper hangings.....15 bls., 3 cs.
Coated paper .....74 cs.
Decalcomania paper .....6 cs.
Filter paper .....9 cs.
Drawing paper .....20 cs.
Hanging stock .....642 bls.
Packing paper.....39 cs., 627 bls., 120 rolls
Kraft paper .....305 rolls.
Transfer paper .....8 cs.
Tracing paper .....86 cs.
Crepe paper .....3 cs.
Copy paper .....20 cs.
Straw paper .....140 rolls
Straw board .....110 rolls
Miscellaneous paper....293 cs., 7,446 rolls, 68 bls.

CIGARETTE PAPER

Liggett & Myers Tobacco Company, Collamer, Havre, 19 cs.

WALL PAPER

Drinhausen Hollkott Paper Company, Grootendyk, Rotterdam, 521 bls.
F. J. Emmerich, Cleveland, Hamburg, 8 bls.
P. H. Petry & Co., by same, 14 bls.
R. F. Downing & Co., Inc., Minnewaska, London, 2 bls.
F. J. Emmerich, Berengaria, Southampton, 2 bls.
Whiting & Patterson, by same, 10 cs.

PAPER HANGINGS

A. C. Dodman, Jr., Inc., Celtic, Liverpool, 3 bls.
W. H. S. Lloyd & Co., Minnewaska, London, 12 bls., 3 cs.

HANGING STOCK

Drinhausen Hollkott Paper Company, Grootendyk, Rotterdam, 591 bls.
Janeway & Carpender, Rotterdam, Rotterdam, 51 bls.

PRINTING PAPER

C. Steiner, Rotterdam, Rotterdam, 11 cs.
Japan Paper Company, Novian, London, 1 cs.
Hudson Trading Company, Innoko, Rotterdam, 15 rolls.
Hudson Trading Company, Orduna, Hamburg, 122 bls.
B. F. Drakenfeld & Co., Franconia, Liverpool, 19 cs.
J. H. Scott Paper Company, Cleveland, Hamburg, 95 rolls.
Falsing Paper Company, by same, 223 pgs.
Maurice O'Meara Company, by same, 207 rolls.
Perry, Ryer & Co., Tuscania, Glasgow, 108 cs.

NEWS PRINT

Ladenburg, Thalman & Co., Birte Jensen, Genoa, 100 rolls.
H. Reeve Angel & Co., Inc., Aden Maru, Hamburg, 158 rolls.
Parsons & Whittemore, by same, 108 rolls.
Bowater Paper Company, Cleveland, Hamburg, 78 rolls.
Janeway & Carpender, United States, Copenhagen, 71 rolls.
J. B. Harris Company, Natirar, Hango, 425 rolls.
Parsons & Whittemore, by same, 1,011 rolls.

PACKING PAPER

Steffens, Jones & Co., Cleveland, Hamburg, 5 cs., 335 bls.
C. W. Rider Company, Grootendyk, Rotterdam, 10 cs.
M. O'Meara Company, Innoko, Rotterdam, 20 bls., 42 rolls.
Republic Bag & Paper Company, by same, 78 rolls.
Wilkinson Brothers & Co., Inc., by same, 24 cs.
J. P. Heffernan Paper Company, by same, 272 bls.

WRAPPING PAPER

C. K. MacAlpine Company, Kungsholm, Gothenburg, 48 rolls.
Stevens Paper Company, Inc., by same, 3 rolls, 47 bls.
A. E. MacAdam, by same, 14 bls., 639 rolls.
A. E. MacAdam, Aden Maru, Hamburg, 718 rolls, 103 bls.
National City Bank, by same, 94 bls., 10 rolls.
Great Eastern Paper Company, Grootendyk, Rotterdam, 196 bls.

KRAFT PAPER

Chatham & Phoenix National Bank, Kungsholm, Gothenburg, 305 rolls.

TRANSFER PAPER

C. B. Richard & Co., Aden Maru, Hamburg, 8 cs.

TRACING PAPER

E. Dietzgen & Co., Aden Maru, Hamburg, 86 cs.

CREPE PAPER

R. F. Downing & Co., Inc., Cleveland, Hamburg, 3 cs.

COATED PAPER

Globe Shipping Company, Muenchen, Bremen, 74 cs.

COPY PAPER

R. F. Downing & Co., Inc., Alaska Maru, Kobe, 20 cs.

DECALCOMANIA PAPER

L. A. Consmiller, George Washington, Bremen, 6 cs.

FILTER PAPER

H. Reeve Angel Co., Inc., Minnewaska, London, 9 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., Minnewaska, London, 2 cs.
Devoe & Reynolds Company, by same, 3 cs.
E. Dietzgen & Co., Rotterdam, Rotterdam, 15 cs.

WRITING PAPER

L. Bamberger & Co., Collamer, Havre, 1 cs.
Globe Shipping Company, Berengaria, Southampton, 9 cs.
Gimbout & Freres, by same, 7 cs.
F. L. Kraemer & Co., Novian, London, 2 cs.

STRAW PAPER

A. Vuyck, Innoko, Rotterdam, 140 rolls.

STRAW BOARD

A. Vuyck, Innoko, Rotterdam, 100 rolls.

PAPER

Kolesch & Co., Innoko, Rotterdam, 4 cs.
Fernstrom Paper Company, Aden Maru, Hamburg, 4,497 rolls.
Italian Book Company, Cleveland, Hamburg, 5 cs.
Traders' Paper Company, Orduna, Hamburg, 33 bls.
Street & Smith, by same, 24 rolls.
Drinhausen, Hollkott Paper Company, by same, 72 rolls.
J. H. Scott Paper Company, by same, 92 rolls.
Gilson Brothers & Co., by same, 225 rolls.
American Express Company, by same, 126 rolls.
Chemical National Bank, by same, 50 rolls.
International Acceptance Bank, by same, 383 rolls, 35 bls.
P. J. Schmietzer, Rochambeau, Havre, 25 cs.
Meadowes, Wye & Co., by same, 2 cs.
Japan Paper Company, by same, 26 cs.
Gimbout Freres, by same, 12 cs.
Standard Products Corporation, by same, 6 cs.
American Express Company, by same, 17 cs.
G. Gennert, by same, 4 cs.
Maurice O'Meara Company, United States, Copenhagen, 113 cs.
D. S. Walton & Co., Kungsholm, Gothenburg, 2,077 rolls.
Hensel, Bruckman & Lorbacher, Rotterdam, Rotterdam, 3 cs.
Erstein & Co., La Savoie, Havre, 2 cs.
Japan Paper Company, by same, 2 cs.
Perry, Ryer & Co., Cameronia, Glasgow, 71 cs.

RAGS, BAGGING, ETC.

E. J. Keller Company, Inc., Pr. Maria, Marseilles, 113 bls. rags.
E. J. Keller Company, Inc., Idaho, Antwerp, 77 bls. bagging.
E. J. Keller Company, Inc., Pipestone County, Havre, 69 bls. bagging, 3 bls. rags.
E. J. Keller Company, Fenchurch, Marseilles, 684 bls. rags.
Castle & Overton, Scythia, Liverpool, 52 bls. bagging.
Castle & Overton, Pipestone County, Havre, 64 bls. bagging, 615 bls. rags.
Castle & Overton, Fenchurch, Barcelona, 65 bls. bagging.
Castle & Overton, Jessmore, Belfast, 33 bls. threadwaste.
Castle & Overton, California, Glasgow, 10 bls. paper stock.
Irving Bank Columbia Trust Company, Siamese Prince, Dundee, 150 bls. paper stock.
Guaranty Trust Company, Siamese Prince, Leith, 60 bls. rags.
D. M. Hicks, by same, 70 bls. rags.
E. J. Keller Company, Inc., Birte Jensen, Leghorn, 306 bls. rags.
Guaranty Trust Company, by same, 34 bls. rags.
E. J. Keller Company, Inc., Grootendyk, Rotterdam, 123 bls. rags.
G. W. Millar & Co., Inc., by same, 47 bls. rags.
P. Berlowitz, by same, 108 bls. rags.
D. M. Hicks, by same, 38 bls. rags.
E. J. Keller Company, Inc., Aden Maru, Hamburg, 77 bls. rags.
Darmstadt & Scott Company, by same, 19 bls. rags.
M. O'Meara Company, by same, 17 bls. rags.
Salomon Brothers & Co., Cleveland, Hamburg, 40 bls. rags.
E. J. Keller Company, Inc., by same, 80 bls. jute waste.
P. Birkenstein & Son, Muenchen, Bremen, 451 bls. rags.
Goldman, Sachs & Co., by same, 163 bls. rags.
T. D. Downing & Co., Collamer, Havre, 8 bls. rags.
E. J. Keller Company, Inc., Rochambeau, Havre, 85 bls. rags.
Ridder-Peabody Acceptance Corporation, by same, 160 bls. rags.
Prince & Kennedy, Eastside, Dublin, 60 bls. bagging.
W. Hughes & Co., Innoko, Rotterdam, 72 bls. cotton waste.
International Acceptance Bank, by same, 104 bls. rags.
Whaling Waste Products Company, by same, 112 bls. rags.
Castle & Overton, by same, 234 bls. rags.
E. J. Keller Company, Inc., by same, 77 bls. rags.
Reis & Co., by same, 39 bls. threadwaste.
S. Birkenstein & Son, Seydlitz, Bremen, 119 bls. rags.
L. H. Abenheimer, by same, 115 bls. rags.
M. O'Meara Company, Rotterdam, Rotterdam, 63 bls. burlap.
G. M. Graves Company, Novian, London, 24 bls. paper stock.

OLD ROPE

Brown Brothers & Co., Siamese Prince, Leith, 53 coils.
Brown Brothers & Co., Grootendyk, Rotterdam, 150 coils.
Brown Brothers & Co., Cleveland, Hamburg, 60 coils.
Brown Brothers & Co., United States, Copenhagen, 75 coils.
Brown Brothers & Co., Seydlitz, Bremen, 21 coils, 10 bls.
Brown Brothers & Co., Rotterdam, Rotterdam, 82 coils.
W. Stech & Co., by same, 28 coils.
D. M. Hicks, Birte Jensen, Marseilles, 134 pkgs.

(*Continued on page 76*)

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AND
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CLARENCE J. WEST

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14 Beacon Street Boston, Mass.

Imports and Exports of Paper and Paper Stock

(*Continued from page 74*)

WOOD PULP

Johaneson, Wales & Sparre, Inc., Stockholm, Gothenburg, 1,050 bls. sulphite pulp and 150 bls. kraft pulp.

J. Andersen & Co., Aden Maru, Hamburg, 529 bls., 106 tons wood pulp.

Buck, Kiaer & Co., by same, 345 bls., 51 tons wood pulp.

Buck, Kiaer & Co., United States, Trondhjem, 600 bls. wood pulp.

Tidewater Papermills Company, Bornholm, Liverpool, N. S., 12,284 bls. wood pulp.

Castle & Overton, Muenchen, Bremen, 380 bls. wood pulp.

H. Hollesen, Inc., by same, 1,385 bls. wood pulp.

H. Hollesen, Inc., Seydlitz, Bremen, 2,850 bls. wood pulp.

Castle & Overton, by same, 550 bls. wood pulp.

Castle & Overton, Innoko, Rotterdam, 258 bls., 57 tons wood pulp.

Hartig Pulp Company, by same, 138 bls., 28 tons wood pulp.

H. Hollesen, Inc., Novian, Hamburg, 130 bls. wood pulp.

Perkins-Goodwin & Co., Bergensfjord, Drammen, 750 bls. sulphite pulp.

Lagerloef Trading Company, Natirar, 4,877 bls. chemical pulp.

WOOD PULP BOARDS

Lagerloef Trading Company, Natirar, Hango, 1,770 bls., 260 tons, 43 rolls.

WOOD FLOUR

The Hansa Company, Natirar, Hango, 2,073 bags, 86.000 kilos.

Innes, Spieden & Co., Tynfjord, Kristiania, 782 bags, 39,882 kilos.

CASEIN

Kalbfleisch Corporation, American Legion, Buenos Aires, 2,500 bags.

BOSTON IMPORTS

WEEK ENDING MAY 31, 1924

J. A. Conkey Company, Novian, Hamburg, 644 rolls kraft paper.

S. S. Alcorn, by same, 12 cs. printing paper.

Nilsen, Lyon & Co., Inc., Natirar, Hango, 150 bls., 28 tons wood pulp.

Lagerloef Trading Company, by same, 3,660 bls. wood pulp.

Hartig Pulp Company, by same, 152 bls., 25 tons wood pulp.

Lagerloef Trading Company, Eastern Coast, 8,476 bls. chemical pulp.

E. J. Keller Company, Inc., Gustavsholm, Gothenburg, 1,250 bls. wood pulp.

E. J. Keller Company, Inc., Rhine Maru, Leghorn, 41 bls. rags.

E. J. Keller Company, Inc., Sac City, Rotterdam, 26 bls. rags.

G. M. Graves Company, Novian, London, 88 bls. rags.

Baring Brothers & Co., by same, 146 bls. rags.

Brown Brothers & Co., by same, 428 coils, 48 bls. old rope.

E. Butterworth & Co., Inc., Sac City, Rotterdam, 59 bls. old rags.

Mechanics & Metals National Bank, by same, 20 bls. new rags.

George M. Graves Company, by same, 179 bls. old rags.

E. Butterworth & Co., Inc., Dansion, Manchester, 253 bls. old rags.

Train, Smith Company, by same, 49 bls. new cuttings.

International Purchasing Company, by same, 339 coils manila rope.

Maurice O'Meara Company, by same, 70 bls. old burlap bagging.

E. F. Russ Company, Dansion, Manchester, 289 bgs. hide cuttings.

Ashworth, Speakman Company, by same, 44 bgs. hide cuttings.

E. Butterworth & Co., Inc., by same, 473 bgs. hide cuttings.

J. Andersen & Co., West Port, Hamburg, 278 bls. wood pulp.

Order, by same, 500 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING MAY 31, 1924

E. J. Keller Company, Inc., Bilderdyk, Amsterdam, 461 bls. rags.

E. J. Keller Company, Inc., Emden, Hamburg, 50 bls. rag pulp.

Lagerloef Trading Company, Tasmania, 17,103 bls. chemical wood pulp.

Lagerloef Trading Company, Eastern Star, 4,579 bls. chemical wood pulp.

Johaneson, Wales & Sparre, Inc., Pastor, Bremen, 300 bls. sulphite pulp.

PHILADELPHIA IMPORTS

WEEK ENDING MAY 31, 1924

Franklin Paper Company, Innoko, Rotterdam, 529 bls., 275 rolls packing paper.

Maurice O'Meara Company, by same, 181 bls. packing paper.

Baldwin Universal Company, Aden Maru, Hamburg, 17 cs. wrapping paper.

Philadelphia National Bank, by same, 5,055 bls. wrapping paper.

L. H. Abenheimer, by same, 30 bls. rags.

J. Lang Paper Company, by same, 436 bls. rags.

Castle & Overton, by same, 192 bls. rags.

Castle & Overton, Pipestone County, Havre, 252 bls. rags.

Castle & Overton, Porta, Hamburg, 28 bls. rags.

Castle & Overton, Hoosac, Scotland, 79 bls. rags.

Castle & Overton, Innoko, Rotterdam, 1,013 bls. rags.

J. Lang Paper Company, by same, 71 bls. rags.

Philadelphia National Bank, by same, 103 bls. rags.

E. J. Keller Company, Inc., by same, 108 bls. rags.

E. J. Keller Company, Inc., Emden, Hamburg, 186 bls. rags.

E. J. Keller Company, Inc., West Arrow, Antwerp, 18 bls. rags.

Castle & Overton, by same, 96 bls. rags.

G. M. Graves Company, by same, 5 bls. rags.

Whaling Waste Products Company, by same, 1 bl. rags.

Salomon Brothers & Co., by same, 43 bls. cotton waste.

E. Bers & Co., Artiga, Vancouver, B. C., 24 bls., 38 cls. old rope.

Castle & Overton, Porta, Hamburg, 2,000 bls. wood pulp.

Johaneson, Wales & Sparre, Inc., Gustafsholm, Gothenburg, 598 bls. kraft pulp.

Lagerloef Trading Company, Bremerton, 1,271 bls. chemical wood pulp.

Lagerloef Trading Company, Porta, 3,678 bls. chemical wood pulp.

NEW ORLEANS IMPORTS

WEEK ENDING MAY 31, 1924

Castle & Overton, Niagara, Bordeaux, 40 bls. bagging, 1,339 bls. rags.

Milton Paper Co. Expands in New Quarters

The Milton Paper Company has taken a long time lease on the premises at 119-125 West 24th street within a block of the greatest of New York centers—Fifth avenue and 23rd street—making it most accessible to all parts of the greater city. The building has a frontage of 119 feet and a depth of 125 feet. The basement alone has storage capacity for over 6,000 cases of paper. On or about June 15, the Milton Paper Company will move into its new home which is now being fitted up with the latest interior fixtures, the shelving being made of steel throughout, enameled in French gray.

The company will carry a complete line of everything in the paper line that is necessary to the printer.

One of the features of the business will be special attention paid to store trade. A large force of men will be employed to attend to the wants of the printer with a special delivery auto to insure prompt service. In addition to this, two new Mack trucks are being added to the company's shipping department to take care of the regular business.

Many new lines are being added, among which are: Dreadnaught Parchment and Ironsides Ledger of the Gilbert Paper Company; Milton Cover, Miltonia Script and Hygrade Wedding; Discount Bond will be carried in 13 colors. A complete line of coated papers and M. F. Book are also being added together with a very complete line of inexpensive bristols and indexes, tag, manila and jute.

The sales force has been materially increased. The sales organization will be located in the front of the store occupying the entire frontage. A complete trunk line system is being installed connecting all departments.

The office management will be under the supervision of Henry Shapiro, whose office will be on the first mezzanine floor. On the second mezzanine will be the offices of Michael Milton and Leonard H. Bogart, who look after the sales and buying end of the business.

New Paper House for Kansas City

KANSAS CITY, Mo., June 2, 1924.—The Willis & Weber Paper Company has just been organized here. The partners are T. F. Willis, who was formerly with an eastern paper house and A. F. Weber of this city.

Paper that Passes the Keenest Inspection

—is the paper made with the aid of our TYPE "B" IRON EXTRACTOR. This device removes not only the iron from the paper stock but other foreign substances. It never fails to satisfy in obtaining 100% perfect results, its low cost of operation, its compactness, etc., are factors that have placed this device in over one hundred paper mills throughout the country. Write us for complete details.

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Electrical Specialists

Clay

300 tons daily

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This insures greater freedom from impurities and an exceedingly uniform product.

Prices on M-E pulverized clay may surprise you even considering this additional treatment.

Let us submit samples and quote you

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Papers:

Genuine Vegetable Parchment
For wrapping all moist and greasy foodstuffs.

Bread Wraps—Waxed Papers
For tight-sealing cartons and wrapping dry foods.

Bond and Ledger Papers
All standard sizes, weights and colors.

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Ask and ye shall receive full information.

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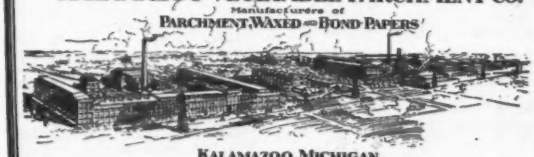

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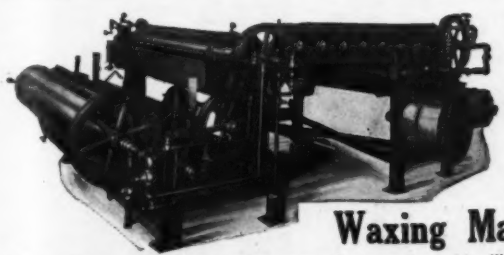

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Paper Coating Machines for water-proofing, waxing and oiling; asphalt coating and duplexing; gumming and gluing; clay coating; color coating, etc. Standard equipment the world over.

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Market Quotations

PAPER SECURITIES CLOSING PRICES TUESDAY

Reported by Stewart Tuttle & Co., Inc., 120 Broadway, New York

Stocks	BID	ASKED
Abitibi Power and Paper Company, Ltd.	57½	.58¼
Abitibi Power and Paper Company, Ltd, Pfd.	100½	101
American Writing Paper Company, Pfd.	2¾	2¾
Brompton Pulp and Paper Company, Ltd.	32⅜	32¾
Donnacona Paper Company, Ltd.	45	50
Donnacona Paper Company, Ltd., Pfd.	98	100
International Paper Company	45⅝	45¾
International Paper Company, Pfd.	71¾	72
Laurentide Company, Ltd.	88¾	89⅞
Price Brothers	41	42
St. Maurice Paper Co., Ltd.	90	92¼
Smith (Howard) Paper Mills, Ltd.	55	56
Spanish River Pulp and Paper Mills, Ltd.	109½	109⅝
Spanish River Pulp and Paper Mills, Pfd.	117	117½
Union Bag and Paper Corp.	50½	52
Wayagamack Pulp and Paper Company, Ltd.	35	37
West Virginia Pulp and Paper Company	50	53

Bonds	BID	ASKED
Abitibi Power and Paper Company, Ltd., 1st 6s, 1934	99	101
Abitibi Power and Paper Company, Ltd., Gen. 6s 1940	82	94
Abitibi Power and Paper Company, Ltd., Con. 8s 1931	102½	103½
Belgo Canadian Paper Company, 1st 6s 1943	93½	94¼
Brown Company Serial 6s	98	99½
Carthage Sulphite Pulp and Paper Company, 1st 8s 1941	35	50
Continental Paper and Bag Mills Corporation, 1st and Ref. 6½s, Series "A," 1944	93	95
Donnacona Paper Company, Ltd., 1st 6s 1940	97¾	98¾
Eddy Paper Company, 1st 7½s 1931	96½	98½
Gair (Robert) Company, 1st 7s 1937	93	94½
International Paper Company, 1st and Ref. 5s (Series "B") 1947	83¾	84¼
Mattagami Pulp and Paper Company, 1st 6s 1937	58	60
Mattagami Pulp and Paper Company, 1st 7s 1949	20	25
Oswego Falls Corporation, 1st 8s 1942	100¾	101¾
Oxford Paper Company, 1st and Ref. 6s (Series "A") 1947	96	99
Parker, Young Company, 1st 6½s 1944	95½	97½
Paterson Parchment Paper Company, 1st 6s (Series "A") 1938	95½	96½
Peshtigo Paper Company, 1st 7s (Series "B") 1942	92	94½
Price Bros. & Co., Ltd., 1st 6s (Series "A") 1943	95¼	96½
Provincial Paper Mills, Ltd., 1st 6s 1940	98	100
Riordon Pulp and Paper Company, Ltd., Gen. 6s 1929	15½	17½
Riordon Pulp and Paper Company, Ltd., 6s 1942	71½	74
Riordon Company, Ltd., 1st and Ref. 8s 1940	67	69
River Raisin Paper Company, 1st 8s 1936	103½	104½
Smith (Howard) Paper Mills, Ltd., 6s 1934	95	96
Smith (Howard) Paper Mills, Ltd., 1st Ref. 7s 1941	92½	95
Spanish River Pulp and Paper Mills, Ltd., 1st 6s 1931	101	103
Spanish River Pulp and Paper Mills, Ltd., Gen. 8s 1941	102¾	103¾
Wayagamack Pulp and Paper Company, Ltd., 1st 6s 1951	74	77

Paper

F. o. b. Mill

Ledgers	11.00	@	38.80
Bonds	9.00	@	45.00
Writings—			
Extra Superfine	14.00	@	30.00
Superfine	14.00	@	30.00
Tub Sized	10.00	@	15.00
Engine Sized	8.00	@	11.00
News—			
Rolls, contract	3.75	@	4.00
Rolls, transit	3.75	@	4.25
Sheets	4.25	@	4.50
Side Runs	3.50	@	4.15
Book, Cased—			
S. & S. C.	7.25	@	9.00
M. F.	7.10	@	8.85
Coated and Enamel	9.00	@	14.00
Lithograph	9.00	@	14.00
Tissues—			
White No. 1	.75	@	.76
White No. 2	.70	@	.80
Colored	1.05	@	1.90
Anti-Tarnish	1.35	@	1.90
Kraft	.85	@	1.10
Manila	.75	@	.80
Kraft—			
No. 1 Domestic	5.50	@	6.25
No. 2 Domestic	5.00	@	5.75
Imported	4.75	@	5.20
Manila—			
No. 1 Jute	7.50	@	9.00
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.75	@	5.25
No. 2 Wood	4.00	@	4.50
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	5.50	@	5.75
No. 2 Fibre	4.75	@	5.25
Common Bogus	3.50	@	—
S. Screening	3.25	@	3.75
Card Middles	4.00	@	5.00

Boards—per ton—			
News	40.00	@	55.00
Straw	40.00	@	45.00
Chip	37.50	@	42.50
Binders' Boards	70.00	@	75.00
Sgl. Mla. Lt. Chip	52.50	@	57.50
Wood Pulp	70.00	@	75.00
Container	57.50	@	65.00
Sulphate Screenings—			
Coarse	.80	@	.90
Refined	1.75	@	2.00
Ground Wood—			
Screenings	20.00	@	25.00
Glassine—			
Bleached, basis 25 lbs.	12.00	@	15.00
Bleached, basis 20 lbs.	14.00	@	17.00

Mechanical Pulp

(Ex-Dock)			
No. 1 Imported	35.00	@	40.00
(F. o. b. Mill)			
No. 1 Domestic	27.50	@	34.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	3.75	@	4.50
Easy Bleaching	2.90	@	3.10
No. 1 strong unbleached	2.60	@	2.80
No. 2 strong unbleached	2.20	@	2.40
No. 1 Kraft	2.50	@	2.85
Sulphate—			
Bleached	3.50	@	3.65
(F. o. b. Pulp Mill)			
Sulphite (Domestic)—			
Bleached	3.50	@	4.50
Easy Bleaching Sulphite	2.50	@	2.95
News Sulphite	2.40	@	2.60
Mitscherlich	3.00	@	3.50
Kraft (Domestic)	2.40	@	3.55
Soda Bleached	3.90	@	4.10

Domestic Rags

New Rags

Prices to Mill, f. o. b. N. Y.			
Shirt Cuttings—			
New White, No. 1	13.00	@	13.50
New White, No. 2	6.25	@	6.75
Silesias, No. 1	7.50	@	8.00
New Unbleached	10.50	@	11.00
Washables	5.50	@	6.15
Fancy	6.50	@	7.00
Blue Overall	8.00	@	8.50
New Blue	5.50	@	6.00
New Black Soft	4.65	@	5.15
New Light Seconds	3.00	@	3.25
O. D. Khaki Cuttings	4.75	@	5.00
Men's Corduroy	4.00	@	4.25
New Canvas	7.00	@	7.50
New Black Mixed	2.75	@	3.00

Old Rags

White, No. 1—			
Repacked	6.50	@	7.00
Miscellaneous	5.50	@	5.75
White, No. 2—			
Repacked	4.25	@	4.50
Miscellaneous	3.75	@	4.00
St. Soiled, White	2.80	@	3.00
Thirds and Blues—			
Repacked	3.62½	@	3.87½
Miscellaneous	2.90	@	3.15
Black Stockings	3.75	@	4.00
Roofing Rags—			
Cloth Strippings	1.90	@	2.00
No. 1	1.90	@	2.00
No. 2	1.80	@	1.90
No. 3	1.15	@	1.25
No. 4	1.15	@	1.25
No. 5A	1.50	@	1.60

Foreign Rags

New Light Silesias	7.50	@	8.75
Light Flannelettes	8.00	@	8.25
Unbl'chd Cottons	9.00	@	9.50
New White Cuttings	11.50	@	12.50
New Light Oxfords	7.75	@	8.25
New Light Prints	7.25	@	7.75
New Mixed Cuttings	3.25	@	3.75
New Dark Cuttings	3.00	@	3.50
No. 1 White Linens	9.00	@	10.00
No. 2 White Linens	7.00	@	8.00
No. 3 White Linens	6.00	@	6.50
No. 4 White Linens	4.50	@	5.50
Old Extra Light Prints	4.00	@	4.50
Ord. Light Prints	3.00	@	3.50
Med. Light Prints	2.40	@	2.50
Dutch Blue Cottons	3.00	@	4.00
Ger. Blue Cottons	3.00	@	3.25
Ger. Blue Linens	3.50	@	4.00
Checks and Blues	2.25	@	2.50
Dark Cottons	2.00	@	2.10
Shoppery	1.75	@	1.85
French Blues	3.25	@	3.75

Bagging

Prices to Mill F. o. b. N. Y.			
Gunny No. 1—			
Foreign	1.55	@	1.65
Domestic	1.50	@	1.60
Wool, Tares, light	1.40	@	1.50
Wool, Tares, heavy	1.45	@	1.55
Bright Bagging	1.15	@	1.25
Sound Bagging	.90	@	1.00
Manila Rope—			
Foreign	6.25	@	6.50
Domestic	6.50	@	6.75
New Bu. Cut	2.40	@	2.60
Hessian Jute Threads—			
Foreign	2.40	@	2.60
Domestic	2.00	@	2.10

Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard, White, No. 1	3.25	@	3.60
Hard, White, No. 2	2.90	@	3.10
Soft, White, No. 1	2.45	@	2.70
Flat Stock—			
Stitchless	1.30	@	1.40
Over Issue Mag.	1.35	@	1.45
Solid Flat Book	1.20	@	1.30
Crumpled No. 1	1.90	@	1.00
Solid Book Ledger	1.80	@	1.90
Ledger Stock	1.30	@	1.40
New B. B. Chips	1.60	@	1.70
Manilas—			
New Env. Cut	2.45	@	2.55
New Cut. No. 1	1.65	@	1.90
Extra No. 1 old	1.30	@	1.40
Print	.80	@	.90
Container Board	.60	@	.70
Bogus Wrapper	.60	@	.70
Old Krafts Machine compressed bales	1.70	@	1.80
News—			
No. 1 White News	1.65	@	1.75
Strictly Overissue	.80	@	.90
Strictly Folded	.57½	@	.67½
No. 1 Mixed Paper	.50	@	.60
Common Paper	.35	@	.40

Twines

Cotton—(F. o. b. Mill)—			
No. 1	.43	@	.48
No. 2	.41	@	.43
No. 3	.40	@	.42
India, No. 6 basis—			
Light	.17	@	.18
Dark	.16	@	.17
B. C., 18 basis	.41	@	.42
A. B. Italian, 18 Basis	.51	@	.61
Finished Jute—			
Dark, 18 basis	.26	@	.28
Light, 18 basis	.28	@	.30
Jute Wrapping, 3-6 Ply—			
No. 1	.20	@	.23
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.15	@	.17
Fine Tube Yarn—			
5-ply and larger	.20	@	.28
4-ply	.21	@	.24
3-ply	.22	@	.25
Unfinished India—			
Basis	.14	@	.15
Paper Makers' Twine			
Balls	.11	@	.13
Box Twine, 2-3 ply	.14	@	.15
Jute Rope	.15	@	.16
Amer. Hemp, 6	.30	@	.32
Sisal Hay Rope—			
No. 1 Basis	.14	@	.16
No. 2 Basis	.10	@	.12
Sisal Lath Yarn—			
No. 1	.14	@	.15
No. 2	.11	@	.13
Manila Rope	.18	@	.19

CHICAGO

[FROM OUR REGULAR CORRESPONDENT]

Paper

F. o. b. Mill

All Rag Bond	35	@	40
No. 1 Rag Bond	25	@	35
No. 2 Rag Bond	14	@	25
Water Marked Sulphite	9	@	12
Sulphite Bond	7¼	@	10¾
Sulphite Ledger	9½	@	12
Superfine Writing	18	@	24
No. 1 Fine Writing	14	@	18
No. 2 Fine Writing	12	@	14
No. 3 Fine Writing	9	@	12
No. 1 M. F. Book	5¾	@	7½
No. 1 S. & S. Co. Book	6¼	@	7¾
Coated Book	8	@	10
Coated Label	8	@	10
News—Rolls, mill	3¾	@	4½
News—Sheets, mill	4	@	4¾
No. 1 Manila	4¾	@	5
No. 1 Fibre	4¾	@	—
No. 2 Manila	3½	@	4
Butchers' Manila	4¼	@	4½
No. 1 Kraft	6	@	6½
No. 2 Kraft	5	@	5½
Wood Tag Boards	4½	@	6
Screenings	2¾	@	—
Boards, per ton—			
Plain Chip	$37.50	@	42.50
Solid news	40.00	@	45.00
Manila Line Chip	50.00	@	55.00
Container Lined—			
85 Test	60.00	@	65.00
100 Test	65.00	@	70.00

Old Papers

F. o. b. Chicago

Shavings—			
No. 1 Hard White	3.00	@	3.10
White Envel. Cuttings	3.15	@	3.25
No. 1 Soft Shav.	2.65	@	2.75
No. 1 Mixed	1.25	@	1.35
No. 2 Mixed	1.15	@	1.25
Ledgers and Writings	1.45	@	1.50
Solid Books	1.35	@	1.40

No. 1 Books, Light.	1.25	@	1.30
Blanks	1.65	@	1.75
Ex. No. 1 Manila..	1.90	@	2.00
Manila Envelope Cuttings	2.10	@	2.15
No. 1 Manilas...	95	@	1.00
Folded News (over issue)	.85	@	.90
Old Newspapers—			
No. 1	.80	@	.85
No. 2	.65	@	.70
Mixed Papers—			
No. 1	.65	@	.70
No. 2	.55	@	.60
Straw Clippings	.80	@	—
Binders' Clippings..	.80	@	—
Kraft	1.90	@	2.00
New Kraft Cuts	2.10	@	2.15
Roofing Stock, f. o. b. Chicago, Net Cash—			
No. 1	$33.00	@	—
No. 2	31.00	@	—
No. 3	29.00	@	—
No. 4	29.00	@	—

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT]

Paper

Bonds	.09½	@	.53
Ledgers	.15	@	.40
Writings—			
Superfine	.15	@	.20
Extra fine	.12	@	.22
Fine	.20	@	.30
Fine, No. 2	.20	@	.25
Fine, No. 3	.15	@	.20
Book, M. F.	.09¼	@	.12¾
Book, S. S. & C..	.11	@	.15
Book, Coated	.14¼	@	.20
Coated Lithograph.	.10	@	.15
Label	.10	@	.15
News	.05	@	.07
No. 1 Jute Manila	.12	@	.13
Manila Sul., No. 1	.08	@	.10
Manila No. 2	.07½	@	.08
No. 2 Kraft	—	@	.08½
No. 1 Kraft	—	@	.09½
Common Bogus	.03½	@	.04
Shaw Board	55.00	@	60.00
News Board	42.50	@	45.00
Chip Board	40.00	@	45.00
Wood Pulp Board. (Carload Lots)	2.75	@	3.00
Binder Boards—			
Per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	61.00	@	63.00
Slaters	66.00	@	68.00
Best Tarred, 1-ply (per roll)	1.70	@	1.80
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply.	2.00	@	2.10

Bagging

F. o. b. Phila.

Gunny No. 1—			
Foreign	1.45	@	—
Domestic	1.50	@	—
Manila Rope	6.00	@	6.50
Sisal Rope	1.25	@	—
Mixed Rope	1.30	@	—
Scrap Burlaps	1.00	@	1.25
Wool Tares, heavy.	2.00	@	2.13
Mixed Strings	1.30	@	—
No. 1, New Lt. Burlap	2.00	@	—
New Burlap Cuttings	2.00	@	2.25

Old Papers

F. o. b. Phila.

Shavings—			
No. 1, Hard White	4.00	@	4.10
No. 2, Hard White	3.25	@	3.50
No. 1 Soft White	3.00	@	3.10
No. 2 Soft White	1.75	@	2.00
No. 1 Mixed	1.60	@	1.75
No. 2 Mixed	1.25	@	1.50
Solid Ledger Stock.	2.00	@	2.25
Writing Paper	2.00	@	—
No. 1 Books, heavy	1.80	@	1.90
No. 2 Books, light	1.40	@	1.50
No. 1 New Manila.	2.50	@	2.60
No. 1 Old Manila..	1.75	@	2.00
Container Manila...	1.20	@	1.25
Old Kraft	2.25	@	2.50
Overissue News	1.25	@	1.35
Old Newspaper	.75	@	.80
No. 1 Mixed Paper.	.70	@	.75
Common Paper	.50	@	.60
Straw Board, Chip.	.75	@	.80
Binders Bd., Chip..	.75	@	.80

Domestic Rags—New.

Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.12½	@	.13½
New White, No. 2	.06	@	—
Silesias, No. 1	.08¼	@	.08½
New Unbleached.	.11	@	.11½
Washable	.05	@	.05½
Fancy	.06½	@	.06¾
Cottons—according to grades—			
Blue Overall	.08¾	@	.09
New Blue	.03¼	@	.04
New Black Soft.	.06	@	.06¼
New Light Seconds	.03½	@	.03¾
Khaki Cuttings..	.05½	@	.06
Corduroy	.04	@	.04½
New Canvas	.10½	@	.11
New Black Mixed	.05¼	@	.05½
Old White, No. 1—			
Repacked	5.75	@	6.00
Miscellaneous	.05	@	.05½
White, No. 2—			
Repacked	.04½	@	.04¾
Miscellaneous	.04¼	@	.04½
Thirds and Blues—			
Repacked	3.75	@	—
Miscellaneous	3.00	@	—
Black Stockings..	4.00	@	4.50
Roofing Stock—			
No. 1	1.75	@	1.85
No. 2	1.65	@	1.75
No. 3	1.15	@	1.20
No. 4	1.25	@	1.35
No. 5A	1.40	@	—
B	1.25		nominal
C	1.15		nominal

BOSTON

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Bonds	.09	@	.63
Ledgers	.09	@	.55
Writings	.08½	@	.42
Superfine	.16	@	.26
Fine	.15	@	.18
Books, S. & S. C..	.07¼	@	.12
Books, M. F.	.07¼	@	.09¼
Books, coated	.09	@	.15
Label	.09	@	.13
News, sheets	4.75	@	6.00
News, rolls	4.00	@	4.50
Manilas—			
No. 1 Manila	6.00	@	7.00
No. 1 Fiber	.06½	@	.07
No. 1 Jute	9.00	@	10.50
Kraft Wrapping	.07	@	—
Common Bogus	3.50	@	3.85

Boards

(Per Ton Destination)

Chip	42.50	@	45.00
News, Vat Lined..	44.00	@	45.00
Wood, Vat Lined..		@	52.50
Filled News Board.	45.00	@	47.50
Solid News Board, No. 4 Finish	60.00	@	—
S. Manila Chip	57.50	@	62.50
Pat. Coated News..	75.00	@	85.00

Old Papers

Mixed paper	.50	@	.55
Folded news	.62½	@	.65
Soft white shavings	2.60	@	2.75
Hard white shavings	3.50	@	3.75
Kraft paper	1.90	@	2.00
Ledger and letter..	2.15	@	2.35
No. 1 books and magazines	1.35	@	1.50
Manila paper No. 1	1.70	@	1.75
Solid ledgers	2.50	@	2.75
No. 1 roofing rags.	1.65	@	1.70
No. 2 roofing rags.	1.50	@	1.60
No. 3 gunny bagging	.75	@	.85
No. 4 Brussels and hard back carpets,	1.60	@	1.70
No. 5 roofing rags			
A's	.90	@	1.00
B's		@	
C's		@	
No. 6 City dump rags		@	
Manila rope, domestic	.6	@	.6½
Mixed strings	1.20	@	1.35
Jute strings	1.40	@	1.50

TORONTO

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.11	@	.12½
Light tinted	.12	@	.13½
Dark tinted	.13½	@	.15
Ledgers (sulphite).	—	@	.13
Writing	.09½	@	.12
News, f. o. b. Mills—			
Rolls (carloads)	3.75	@	—
Sheets (carloads)	—	@	4.50
Sheets (2 tons or over)	—	@	4.75
Book—			
No. 1 M. F. (carloads)	9.00	@	—
No. 2 M. F. (carloads)	8.00	@	—
No. 3 M. F. (carloads)	7.50	@	—
No. 1 S. C. (carloads)	9.50	@	—
No. 2 S. C. (carloads)	8.50	@	—
No. 1 Coated and litho	14.50	@	—
No. 2 Coated and litho	13.50	@	—
No. 3 Coated and litho	12.75	@	—
Wrapping—			
Rag Brown	4.75	@	—
White Rap	5.25	@	—
"B" Manila	5.50	@	—
No. 1 Manila	6.50	@	—
Fiber	6.50	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.15	@	—

Pulp

(F. o. b. Mill)

Ground wood	$29.00	@	30.00
Sulphite easy bleaching	55.00	@	60.00
Sulphite news grade	50.00	@	55.00
Sulphite, bleached.	75.00	@	80.00
Sulphite	60.00	@	65.00

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut..	3.60	@	—
Soft White Book shavings	2.80	@	—
White Blk. News.	1.70	@	—
Book and Ledger—			
Flat Magazine and Book Stock(old)	1.35	@	—
Light and Crumpled Book Stock	1.20	@	—
Ledgers and Writings	1.68	@	—
Solid Ledgers	2.00	@	—
Manilas—			
New Manila Cut.	—	@	1.60
Printed Manilas..	1.10	@	—
Kraft	2.05	@	—
News and Scrap—			
Strictly Overissue.	.80	@	—
Folded News	.80	@	—
No. 1 Mixed Papers	—	@	.40
Domestic Rags—			
Price to mills, f. o. b. Toronto	Per lb.		
No. 1 White shirt cuttings	.13	@	.13¼
No. 2 White shirt cuttings	.06½	@	.07
Fancy shirt cuttings	.06¼	@	.06½
No. 1 Old Whites		@	
Third and blues..	.04	@	.04½
	Per cwt.		
Black stockings...	.03	@	—
Roofing stock:			
No. 1	—	@	—
No. 2	—	@	—
Manila rope	.06½	@	.06¾
No. 2	1.55	@	—

Standards for Asbestos Paper

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., May 28, 1924.—Elimination of seven sizes of asbestos paper in rolls, and of two out of three sizes of asbestos millboard, together with reduction from eight to five weights of asbestos paper and from seven to four thickness of asbestos millboard, was indorsed at a meeting, under the auspices of the Division of Simplified Practice, Department of Commerce, of manufacturers' and consumers' representatives. William A. Durgin, Chief of the Division presided.

It was voted that 36 inch asbestos paper should be considered standard and that this width should be stocked only in 100 pound and 50 pound rolls; these two representing 98 and 74 per cent respectively of the demand as shown by actual sales. It was further voted that asbestos paper in 24 inch and 18 inch widths should be made only as special items and that 25 pound rolls in any width should be made only upon special order.

The three weights of paper eliminated were 6 pound, 12 pound and 16 pound.

In the study of asbestos millboard, sheets 40 by 40 inches square were eliminated as an obsolescent type, it being developed during discussion that this size was an outgrowth of practice originating from the importation of asbestos millboard in sheets a meter square. It was voted that the standard size should be considered as 42 inches by 48 inches, and that thicknesses retained should be 1/16th, ⅛th, ¼th, and ½ inch, these constituting 91 per cent of the sales demand.

New Plant for Nova Scotia

There is every likelihood of the erection of a pulp grinding plant at Liscomb, Guysboro County, in the near future, according to C. W. Anderson, M. L. A., of Sherbrooke, Guysboro County, N. S. The plant will be for the purpose of sending ground pulp to the United States. American interests are reported behind the project. Plant will be erected on the Liscomb River, and the pulpwood secured adjacent to the St. Mary's River. Liscomb harbor is open all the year.

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, June 4, 1924.

Conditions in the paper market continue at the same low ebb as has existed for several weeks. A slight ray of hope here and there is always offset by discouraging factors encountered elsewhere. Paper men despairing of finding any distinct betterment in the general conditions are reaching the point where they derive solace from the fact that the market is not getting any worse even if it refuses to improve.

The holiday last week was one factor that helped put an additional crimp in business. Falling as it did on Friday most of the paper houses observed a double holiday on that day and Saturday and as a consequence market routine has remained upset more or less this week. As the present situation sizes up it seems certain that the explanation of today's off-conditions as printed in these columns a few weeks ago was not far from the mark. That the political conditions in the country, congressional affairs and presidential uncertainty have been a large contributory cause no one will attempt to deny. Just how much the adjournment of Congress will clarify the situation remains to be seen but it is not likely that it will do much along that line. The holding of the democratic and republican conventions, however, it is believed, will have a more marked effect. When those are over business men will know a little nearer where they stand, a greater air of confidence is likely to be felt and this should be reflected in business of every kind. But the real panacea is not expected to come until the election is over and the last cause for speculation is disposed of. Then the paper industry will probably take on impetus and finish out the year with a record business that should do much to make up for the shortcomings of the present.

Nothing curbs the demand for news print. This demand keeps up and stock moves rapidly without any response to the slowing up in other lines. The news print call is highly satisfactory and is the bulwark of strength of today's market.

There is a fair demand for the higher grade papers. Ledgers, bonds, writing and book are the leaders. The open market is not over active but contract business continues good and enables the prices to hold firm.

Tissues are not participating in any increased demand but the prices remain at the same figure as last week. The same may be said of kraft and manila.

Board demands appear to be a little better. Prices are very inviting and with many of the mills curtailing their production it would seem an advantageous time to buy. That some buyers realize this is indicated by the increased orders which are coming in. This line is expected to show a considerable improvement at an early date. There is no great surplus of stock at the present time.

Mechanical Pulp

There is no change in the mechanical pulp market. Prices remain the same. There is a fair demand.

Chemical Pulp

The only change in price noted in the chemical pulp market is on sulphite (domestic bleached). This is quoted a trifle lower than for some weeks past. News comes of the settlement of the Norwegian strike last week and of the resumption of the mills. This, however, will not have the effect on the market that will come from the opening of transportation of the Baltic which means that shipments from Sweden will reach the American market in a few weeks. Quite a lot of business is being done in all kinds of pulp and pulp men report the market very satisfactory.

Old Rope and Bagging

The market remains firm as far as old rope and bagging are concerned. The best packings are still in good demand and are commanding a good price. The prices remained fixed where they were a week ago.

Rags

The better grades of rags remain firm and the demand is fair. The lower grades have showed a slight softening in prices during the week and roffing rags are at a lower level than reported last week.

Waste Paper

There is an increased demand for most grades of waste paper but whether it is due to new business the mills are getting or a disposition to take advantage of attractive prices is a matter of speculation. The West is doing most of the buying. The market is still spotty, however, for most grades and when a mill wants anything it wants it in a minute so to speak. The paper jobbers have no supply to speak of and there is bound to be a grand scramble sooner or later. The mills are not running up stock and no one knows just what conditions are leading up to. Everything considered the market appears to be in a trifle better condition than it was a week ago.

Twine

The twine market continues in that sluggish condition which it has been laboring under for some weeks past. There is little life and the least flurry of activity would be heralded by the dealers as agenuine innovation. The prices continue to hang at the exceptionally low mark quoted but inviting as they are they do not appear to entice buyers to step beyond the line and do any buying for the future. Dealers say that higher prices are justified and that it does seem as though a break for the better must come before long.

Spitzer Paper Box Co. Buys Lithographing Co.

TOLEDO, Ohio, May 31, 1924.—The Spitzer Paper Box Company, 3051-57 Monroe street, has acquired control of the M. H. Smith Lithographing Company, Summit and Mulberry streets, according to announcement.

At a meeting of the stockholders held the following officers were elected: Lyman Spitzer, president; Blanche B. Spitzer, vice president and A. B. Newell, Jr., secretary. The directors of the company will include the officers and A. L. Spitzer and Frank Southard, Sr.

Malcolm Smith, who has been president of the Lithographing Company will continue as general manager of the plant.

The two plants will probably be operated separately for a time but later may be consolidated, according to Lyman Spitzer.

The Smith Lithographing Company has been operated under that name for about four years, being the successor to the Fort Industry Lithographing Company.

Sewall Cruising Organization Busy

[FROM OUR REGULAR CORRESPONDENT.]

OLD TOWN, Me., May 29, 1924.—Spring has opened with considerable activity for the James W. Sewall cruising organization. Joseph D. Latno and Paul Gardner of that office are cruising in New Brunswick; H. W. Hussey has a crew in the Kennebec region of Maine; K. M. Clark, F. E. Call and F. W. Willey are in the Lake Nipigon region of Ontario; B. C. Marsh is cruising in Florida; and Mr. Sewall is on a short trip in the Androscoggin country of Maine.

Industrial Paper Co. to Have Larger Quarters

[FROM OUR REGULAR CORRESPONDENT.]

BALTIMORE, MD., May 26, 1924.—The Industrial Paper Company will on June 1 occupy its new warehouse at 501-503 Water street, moving there from its present address, 116 Kay Highway. The new warehouse is more centrally located and contains about three times the floor space of the company's present quarters.

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FACTORY
132ND TO 133RD ST. & BROOK AVE

PAPER BAGS and SACKS

GLASSINE BAGS—SPECIALTIES

Operating a Modern Printing Plant

This Registered Trade Mark Octagon

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Daily Capacity, 425 Tons

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THE WORLD'S LARGEST PACKERS

ANY GRADE QUANTITY

RAGS

and

Paper Stock

GUMBINSKY BROS. CO.
UNION & LUMBER STREETS
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A Remarkable Range of Grades, Textures and Weights

Orr Endless Felts can now be obtained up to 86 feet in length.

With our enlarged new equipment we can now furnish Paper Manufacturers with endless felts up to 86 feet in length.

Paper Manufacturers who carefully check manufacturing costs, and also strive to produce more and better paper at a lower cost per ton, prefer the unvarying quality and long service of ORR felts. A trial of them will bring about a preference that will be lasting.

THE ORR FELT & BLANKET COMPANY, Piqua, Ohio

Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, June 4, 1924.

The chemical market continued weak during the past week. There is no real activity in buying and yet prices continue to hold firm. Another holiday broke in on the week and tended to accentuate the natural slowness of the market, business not only being at a standstill on the holiday but on Saturday as well, most dealers closing for the two days. There is no disposition as yet to overstep the practise of hand-to-mouth buying now indulged in for so long a time. Although prices are low enough to offer temptation under ordinary circumstances they fail to attract any amount of buying for the future. Buyers have apparently made up their minds to buy only for instant needs and they are hanging persistently to that resolve. Dealers are practically unanimous in the opinion that the market will hang right where it is throughout the summer, practically without change in prices or in volume of demand.

Conditions are going from bad to worse in the textile industries. That was clearly brought out at the annual convention of the textile manufacturers held a few days ago at Atlantic City. The mills throughout New England are closed down in many instances and running on short time in other cases. The textile industry being one of the mainstays of the chemical market, the effect of this paralysis of the industry is reflected in the market. Orders from this source have been steadily falling off and it is plain that fewer orders will be received in the near future than in the past. That alone seems to justify the opinion that weakness in the market will last practically all summer.

BLANC FIXE.—Blanc fixe holds to the same firmness which has characterized it for weeks. The painting trade and the rubber industry are still the backbone of the demand for this commodity. The price remains at from $75 to $80 a ton.

BLEACHING POWDERS.—Some distress tonnage has been unloaded in the bleaching powder market. This has been sold at a very low price and has interested only a very few buyers. Curtailed production in the textile industry and at some of the paper mills has had its effect and the decline which has involved this commodity for the past two weeks or so is keeping up. There is no change, however, in the price which is still from 1.90 to 2.15 cents a pound.

CAUSTIC SODA.—The paper industry is buying very little caustic soda at the present time but quite a number of good sized orders have been coming in from other sources which has enabled this commodity to hold up. The price is still from 3.10 to 3.15 cents a pound on a flat basis at the works.

CASEIN.—Casein is holding its own. A few distress lots of the domestic found its way into the market recently. This was disposed of at an exceptionally low price but the quantity was not sufficient to affect the market prices. Casein is now quoted at from 10½ to 11 cents a pound.

CHINA CLAY.—China clay continues in the same way as last week, deriving most of its demand from the pottery trade which keeps sending in large orders which tend to lend some activity to the China clay demand. The imported grades are bringing from $16 to $20 a ton and the domestic grades from $12 to $15 a ton.

CHLORINE.—As far as chlorine is concerned the market is showing an especially weak tendency. The demand is very light but the price is staying at from 4.50 to 7.00 cents a pound in tanks.

ROSIN.—Rosin prices are fluctuating somewhat, there being some cutting of price to accomplish quick sales. The current price is from $5.75 to $5.80 for 280 pounds.

SALT CAKE.—The price on salt cake dropped a peg during the week. There has been a slight falling off in demand. The price now quoted is from $19 to $22 a ton.

SODA ASH.—The demand for soda ash continues the same and the price is holding up. It is quoted at 1.38 cents a pound on a flat basis at the works.

SULPHATE OF ALUMINA.—There is no change either in the demand or price of sulphate of alumina. The price quoted at this writing is from 1.30 to 1.35 cents for the commercial grade at the eastern works and from 2.15 to 2.40 cents a pound for iron free.

SULPHUR.—Sulphur enjoys a slightly better demand and maintains the higher price it advanced to a week ago. The price is from $18 to $19 a ton.

TALC.—The demand for talc is none too good and dealers hope to see this commodity take on a little life before long. The price is, however, steady. The quotation is from $16 to $17 a ton.

SOURCES OF PULP IN NORTH AMERICA

(*Continued from page* 50)

Depletion

Having thus arrived at figures which represent, it may be said, the quantity of raw material in the industry's storehouse, it becomes necessary to indicate the annual drain upon this supply in order that they bear more significance.

In Table 7, then, is shown, alongside of the available supply, the annual cut by countries.

Thus, the United States, with a store of 87,000,000 cords of wood

TABLE VII
Available Stand and Annual Cut (1922) by Countries

Country	Available stand by Table 6 (cords)	Present Annual Cut (cords)
United States	87,000,000	5,500,000
Canada	258,000,000	4,000,000
Alaska	84,000,000	50,000
Mexico	1,440,000	70,000
Total	431,240,000	9,620,000

is diminishing it at the rate of 5,500,000 annually. This does not take growth into consideration, which at present approximates about one-third to one-fifth of the cut. But this growth is largely offset by increase in consumption, destruction by fire, forest ravages, etc.

Taking the continent as a whole (with the exception of Central America and the West Indies) it appears from Table 7 that America will be able to draw upon her reserve, at the present rate, for some 45 years more. However, the reader should not draw too hasty a conclusion from the above statement. As we near the end of our string the process of unwinding will be much slower.

Furthermore, it is claimed that much before this supposed end we will have so established the practices of forestry that the annual increment of our forests will cover our needs and make it unnecessary to draw further upon our reserve, or forest capital.

This no doubt will be true, especially of those localities which already are beginning to feel the pinch of the impending shortage. Yet it should be interesting to know what other possible sources of raw material there are on this continent from which paper can be made. And it will be the province of the remainder of this monograph to indicate what those sources are.

(*To be continued*)

Pulp and Paper Prices in Czechoslovakia

WASHINGTON, D. C., May 14, 1924.—The prices of wood pulp and paper on the Czechoslovakia home market remain unchanged with the exception of unbleached chemical pulp which show a slight reduction in price, writes Consul C. S. Winans from Prague in a report to the Department of Commerce. The paper trade is in a serious condition due to the increased activity of the Austrian pulp and paper market, and this competition is apt to lead to a decrease in prices in the future. Present quotations are bleached mechanical ground wood 2520 to 2650 crowns; unbleached ground wood 1450 to 1600 crowns; bleached chemical pulp 2700 to 2800 crowns; unbleached chemical pulp, class 1A, 1700 to 1800 crowns and class 1B 1620 to 1700 crowns. All the above quotations are per metric ton and are inclusive of the 2 per cent turnover tax.